Question

A 70-year-old man complains of pain and stiffness in both his shoulders. He has lost one stone in the last eight weeks and complains of feeling lethargic with loss of appetite.

Investigations revealed a very high ESR (100 mm/hr), normochromic normocytic anaemia and a positive rheumatoid factor.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Polyarteritis nodosa
- Polymyalgia rheumatica
- Polymyositis
- Rheumatoid arthritis
- SLE

Answer Question

2. Michet CJ, Matteson EL. Polymyalgia rheumatica. *BMJ* 2008;336:765-769.

Question

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- Polymyalgia rheumatica - This is the correct answer ✔
- Polymyositis
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- ✓ SLE - Incorrect answer selected ✖

Rate this question

Next

stiffness of the the shoulder and pelvic girdle muscles. It can have either an acute or subacute onset and is associated with a systemic inflammatory response and therefore constitutional symptoms such as fever, anorexia, weight loss and malaise.

The course of the disease is unpredictable, and 30% of patients also have giant cell arteritis. The cause is unknown, although studies showing a cyclical incidence have led to theories regarding an infectious trigger. Muscle weakness is not a feature of PMR, but this can be difficult to assess in the presence of pain.

Investigations typically reveal:

- Normochromic / normocytic anaemia
- Raised erythrocyte sedimentation rate (ESR) often > 50 mm/hr (although this may be normal)
- Raised C reactive protein (CRP).

PMR is not usually associated with an elevated rheumatoid factor, but it is important to note that this is present in 1-2% of the normal population. It is not specific for rheumatoid arthritis.

Features of giant cell arteritis should be sought:

- Headache
- Visual disturbance
- Jaw claudication
- Thickened and tender temporal arteries.

Diagnosis of PMR can prove difficult, and other inflammatory conditions should be excluded. Patients are usually over 60 years, and PMR is very rarely seen in the under 50s.

Response to a moderate dose of steroids can be useful. The maximum dose of prednisolone should not exceed 20 mg once daily. Patients should report 70% improvement in symptoms within three to four weeks, and inflammatory markers should have normalised by this point.

In general, non-steroidal anti-inflammatories have little use and are associated with significant morbidity. There is little evidence for the use of steroid-sparing agents.

Rheumatoid arthritis more commonly involves the distal joints, and there is erosive joint disease on radiography. Anti-cyclic citrullinated peptide antibodies are typically positive.

Systemic lupus erythematosus (SLE) rarely presents in elderly males, and there is usually more evidence of systemic disease (for example, renal impairment).

Polymyositis causes proximal muscle weakness in addition to pain, and creatinine kinase is typically raised.

Polyarteritis nodosa is a small vessel vasculitis which does not commonly present with isolated muscle pain and stiffness. Central and peripheral nervous system signs are often present at diagnosis.

Reference:

Question

A 22-year-old boy with known hereditary angioneurotic oedema (HAO) presents with a recurrent fever, arthralgia and a rash on the face and the upper chest.

Despite treatment for his HAO, he has always been troubled by recurrent attacks and has required adrenaline on several occasions.

His C4 levels have been persistently reduced secondary to his HAO.

What is the most likely cause for his current symptoms?

(Please select 1 option)

- Dermatomyositis
- Drug rash
- Psoriasis with arthropathy
- Systemic lupus erythematosus (SLE)
- Viral illness

Answer Question

Incorrect

Explanation

HAO is characterised by deficiency of C1 esterase inhibitor.
This leads to persistent activation of the classical complement pathway and C4 levels are frequently low secondary to activation and consumption.
If treatment fails to normalise the C4 levels and they remain persistently low, these patients are at an increased risk of developing SLE.

Question

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Your Answer

- Dermatomyositis
- Drug rash
- Psoriasis with arthropathy
- Systemic lupus erythematosus (SLE) - This is the correct answer ✔
- ✓ Viral illness - Incorrect answer selected ✖

Next

Question

A 75-year-old woman presents with a three week history of new-onset headache.
She had an episode of transient visual loss one week ago but ocular examination is now normal.
She reports that when she chews food, she gets aching in her jaw.
Blood tests reveal:

C reactive protein	90 mg/L	(<10)
Erythrocyte sedimentation rate	120 mm/hour	(0-30)
Haemoglobin	95 g/L	(115-165)
Platelet	528 $\times 10^9$/L	(150-400)

What treatment needs be given that day?
Select the single best answer.

(Please select 1 option)

- Aspirin 300 mg by mouth
- Methylprednisolone 500 mg IV
- Prednisolone 40 mg by mouth
- Prednisolone 60 mg by mouth
- Nothing

Answer Question

normal. She reports that when she chews food, she gets aching in her jaw.
Blood tests reveal:

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

These symptoms and investigation findings are typical of giant cell arteritis (GCA).

GCA affects large and medium sized arteries, with a predilection for the external carotid, ciliary and retinal arteries. Endovascular damage and cytokine-mediated inflammation causes local ischaemia. There is considerable overlap with polymyalgia rheumatica, and symptoms of both should be sought. 20% of patients develop loss of vision, which can be prevented with timely recognition and treatment. Visual loss typically occurs early in the course of disease and, once established, rarely improves. The classically described jaw claudication occurs in a minority of cases, but does indicate a high risk of ischaemic complications.

The typical presentation of GCA is a temporal headache, with myalgia, malaise and fever. ESR and CRP are usually raised.

As soon as the diagnosis is suspected, high dose corticosteroids should be given. Current BSR guidelines recommend:

1. Uncomplicated GCA (no jaw or tongue claudication, or visual symptoms)
 - prednisolone 40-60 mg daily
2. Complicated GCA:
 - Evolving visual loss or history of amaurosis fugax: IV methylprednisolone 500 mg-1 g daily for three days, followed by oral corticosteroids
 - Established visual loss: at least 60 mg prednisolone daily

Bone protection and proton-pump inhibitors should be co-prescribed.

It is important to note that the pathological findings of giant cell arteritis persist for one to two weeks following initiation of corticosteroid, and therefore treatment should not be delayed to obtain a biopsy.

Aspirin 75 mg once daily is sometimes given as an adjunct but higher doses are not recommended.

Symptoms usually resolve quickly, often with two or three days. Once they and laboratory abnormalities resolve, the dose of corticosteroid can be reduced and usually stopped within two years. The patient should be monitored for recurrence throughout the taper: ESR every 4 weeks for 2-3 months, then every 8-12 weeks until 12-18 m after cessation of therapy.

Giant cell arteritis is a medical emergency and should be treated without delay. It is not acceptable to give no treatment.

Reference:

1. Dasgupta B, et al. BSR and BHPR guidelines for the management of giant cell arteritis. *Rheumatology (Oxford).* 2010;49:1594-7.
2. Hassan N, at al. Giant cell arteritis. *BMJ.* 2011;342:d3019.

Question

A 45-year-old woman notices that she develops tingling and numbness over the palmar surface of her thumb, index, and middle fingers after several hours at her computer workstation doing word processing. Pain in the same area often occurs at night as well.

Which of the following pathologic findings most likely accounts for her symptoms?

(Please select 1 option)

- Gout
- Hypertrophic osteoarthropathy
- Entrapment neuropathy
- Rheumatoid arthritis
- Toxic peripheral neuropathy

Answer Question

References:

Patijn J, et al. Carpal tunnel syndrome. *Pain Pract.* 2011;11:297-301.

Question

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- Rheumatoid arthritis
- ✓ Toxic peripheral neuropathy - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Carpal tunnel syndrome is one of the most common entrapment neuropathies, and is a recognised occupational disease. The carpal tunnel is an anatomical compartment bounded on three sides by the carpal bones, and the transverse carpal ligament on the palmar side. Intermittent or sustained high pressure within this compartment produces ischaemia of the median nerve, resulting in the classical symptoms or paraesthesia and pain. If allowed to progress, weakness and wasting develop which eventually become irreversible.

Nerve conduction studies are an important diagnostic test, and are the best predictor of symptom severity and functional status. Treatment depends on severity, and includes splinting, corticosteroid interventions or surgical decompression. In the future pulsed radio frequency may be used.

Gout is caused by the deposition of monosodium urate crystals within a joint, leading to excruitiating pain and swelling. It is not a common cause of the symptoms described above.

Hypertrophic osteoarthropathy may occur secondary to primary lung carcinoma. It presents with clubbing, arthralgia, arthritis and periostosis of the tubular bones. Pain is severe and is present throughout the day.

Rheumatoid arthritis is a possibility in women of this age group, but more commonly presents with swelling and pain of the small joints of the hand.

Toxic neuropathy presents with weakness, sensory loss and reduced reflexes secondary to diffuse nerve damage. This can be caused by a variety of agents but is much less common than carpal tunnel syndrome, making it a less likely answer in this case.

References:

Patijn J, et al. Carpal tunnel syndrome. *Pain Pract.* 2011;11:297-301.

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Next

Question

Which one of the following diagnoses is associated with acute iritis?

(Please select 1 option)

- Keratoconus
- Lyme disease
- Osteogenesis imperfecta
- Psoriatic arthropathy
- Refsum's disease

Answer Question

Incorrect

Explanation

Iritis is associated with conditions such as Reiter's, Behcet's, psoriatic arthropathy (about 20%) and inflammatory bowel disease.

A chronic iritis is rarely described in association with Lyme disease.

Osteogenesis imperfecta is associated with blue sclera.

Keratoconus, meaning "cone shaped," describes a condition in which the cornea (the clear front window of the eye) becomes thin and protrudes. This abnormal shape can cause serious distortion of visual images. It is not associated with iritis.

Refsum's disease is associated with retinitis pigmentosa.

Question

Which one of the following diagnoses is associated with acute iritis?

Your Answer

- Keratoconus
- Lyme disease
- Osteogenesis imperfecta
- Psoriatic arthropathy - This is the correct answer ✔
- ✓ Refsum's disease - Incorrect answer selected ✘

Next

Question

Which of the following drugs is most likely to cause drug-induced lupus erythematosus (DILE) syndrome?

(Please select 1 option)

- Baclofen
- Isoniazid
- Methotrexate
- Procainamide
- Sulphasalazine

Answer Question

- Isoniazid (INH) - low risk
- Sulfasalazine - low risk.

Further Reading:

ADAM Medical Encyclopedia. Systemic Lupus Erythematosus.

Question

Which of the following drugs is most likely to cause drug-induced lupus erythematosus (DILE) syndrome?

Your Answer

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- Isoniazid
- Methotrexate
- Procainamide - This is the correct answer ✔
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Rate this question

Next

Incorrect

Explanation

A recessive gene is responsible for the activity of hepatic N-acetyl transferase resulting in slow or fast (intermediate and fast groups get lumped together) acetylation.

45% of the United Kingdom population are slow acetylators.

Drugs affected include:

- isoniazid
- hydralazine
- dapsone
- procainamide, and
- sulphasalazine.

Slow acetylators have increased risk of isoniazid-induced peripheral neuropathy, and hydralazine or procainamide-induced systemic lupus erythematosus (SLE).

At least 38 drugs currently in use can cause DILE. However, most cases have been associated with these three:

- procainamide
- hydralazine, and
- quinidine.

The risk for developing lupus-like disease from any of the other 35 drugs is low or very low; with some drugs only one or two cases have been reported.

- Isoniazid (INH) - low risk
- Sulfasalazine - low risk.

Further Reading:

ADAM Medical Encyclopedia. Systemic Lupus Erythematosus.

Question

Next

Question

A 25-year-old female was started on minocycline for the treatment of acne.
Seven days later she presented with fever, myalgia, arthralgia and a fixed erythematous rash over the malar eminences that spared the nasolabial folds.
Which autoantibody test would confirm the diagnosis?

(Please select 1 option)

- Anti ds-DNA
- Antihistone
- Anti-Jo-1
- Anti-RNP
- Anti-SCl70

Answer Question

Explanation

This patient has developed drug-induced lupus as a result of minocycline therapy.

This is a syndrome of positive antinuclear antibody (ANA) that appears during therapy with medications and biologic agents.

It has less female predilection than systemic lupus erythematosus (SLE) and rarely involves central nervous system (CNS) and kidneys. It is rarely associated with anti-ds-DNA and is commonly (almost 100%) associated with antibodies to antihistones. Therefore, antihistone is the correct answer.

It usually resolves over several weeks after discontinuation of the offending medication.

About 50 drugs have been listed. The important ones are penicillamine, procainamide, phenytoin, carbamazepine, isoniazid, minocycline, ACE inhibitors, beta blockers, hydralazine, propylthiouracil, hydrochlorthiazide, interferons and TNF inhibitors.

The remaining answer options are incorret for the following reasons:

- Anti ds-DNA - almost exclusive for SLE but rarely positive in drug- induced lupus
- Anti Jo-1 - associated with acute onset of poly/dermatomyositis
- Anti RNP - present in syndromes that have overlap features of several rheumatic syndromes
- Anti SCl-70 - associated with 40% cases of diffuse systemic sclerosis.

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- Anti-Jo-1

Next

A 37-year-old man presents with fever, dry cough, recurrent episodes of sinusitis, and weight loss for last three weeks. This has failed to respond to oral amoxicillin prescribed by his GP.

On admission, he is noted to have a temperature of 37.0°C, BP 128/70 mm Hg, and pedal oedema. He has blood-stained nasal discharge, and is noted to have a stridor.

Recent blood tests are:

Haemoglobin	111 g/L	(130-180)
WBC	12.8 $\times 10^9$/L	(4-11)
Neutrophils	88%	(40-75)
Lymphocytes	10%	(20-45)
Eosinophils	2%	(1-6)
Platelet	470 $\times 10^9$/L	(150-400)
ESR	86 mm/hr	(0-15)
CRP	103 mg/L	(<10)
Anti-proteinase 3 antibody	Positive	(Negative)
Anti-nuclear antibody	Negative	(Negative at 1:20 Dil)
ANCA	Positive (cytoplasmic pattern)	
Urea, electrolytes & creatinine	normal	

What is the diagnosis?

(Please select 1 option)

- Anti-GBM syndrome
- Churg-Strauss syndrome
- Microscopic polyangiitis
- Polyarteritis nodosa
- Wegener's granulomatosis

Answer Question

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- Churg-Strauss syndrome
- Microscopic polyangiitis
- Polyarteritis nodosa
- ✓ Wegener's granulomatosis - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

Common manifestations of Wegener's granulomatosis include:

- Constitutional symptoms like fevers, night sweats, fatigue, lethargy, weight loss, arthralgia
- Ocular involvement including conjunctivitis, episcleritis, uveitis, optic nerve vasculitis, and proptosis
- ENT symptoms like chronic sinusitis, rhinitis, otitis media and hearing loss, subglottic stenosis (leading to stridor and features of extrathoracic airway obstruction on flow-volume loop)
- Pulmonary disease, for example, pulmonary infiltrates, cough, haemoptysis, chest discomfort, and dyspnoea
- Renal disease manifests as crescentic necrotising glomerulonephritis
- Nervous system involvement manifests as mononeuritis multiplex, sensorimotor polyneuropathy, cranial nerve palsies, vasculitis of small to medium-sized vessels of the brain or spinal cord, and granulomatous masses that involve the orbit, optic nerve, meninges or brain
- Skin involvement can lead to palpable purpura or skin ulcers.

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Next

Question

A 52-year-old woman presents with increasing pain at both thumb bases over the last six months. The pain is increased by working as a packer.

Over the last few months she has noticed firm to hard swelling on several distal and proximal interphalangeal joints which were painful at onset, but are relatively painless now. There is no early morning stiffness.

On examination, there are hard (bony) swellings on several distal and proximal IPJs, and squaring of the thumbs. A full blood count, ESR, and CRP done by the GP have been normal.

What is the diagnosis?

(Please select 1 option)

- Osteoarthritis (OA)
- Psoriatic arthritis
- Rheumatoid arthritis
- RS3PE
- Tophaceous gout

Answer Question

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- Psoriatic arthritis
- Rheumatoid arthritis
- RS3PE
- ✓ Tophaceous gout - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This patient has osteoarthritis.

Osteoarthritis is one of the most common joint diseases, and its incidence is increasing with the age and weight of the population.

It presents with pain, commonly affecting the knees, hips and small joints of the hand. There may be bony swellings at distal and proximal IPJs, termed Heberden's and Bouchard's nodes respectively.

Pathogenesis involves the localised loss of cartilage, with remodelling of adjacent bone. The associated pain is exacerbated by exercise and relieved by rest, although in advanced disease rest and night pain can develop. There may also be joint stiffness, typically in the morning or after rest. Diagnosis is often late, and treatment is usually aimed at reducing pain and improving function rather than targeting the disease process.

The lack of early morning stiffness and absence of synovitis (soft-boggy swelling) at small hand joints makes RA or psoriatic arthritis unlikely.

RS3PE (remitting seronegative symmetrical synovitis with pitting oedema) presents with acute onset polyarthritis, mainly in older men, with acute onset pitting oedema of hands and/or feet. Patients are seronegative for rheumatoid factor, and have an excellent response to low dose steroids.

Gout is unlikely, as there is no history of acute gout, and no gouty tophi are described.

Reference:

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-26.
2. NICE. Osteoarthritis (CG177).

Question

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Next

Question

A 52-year-old man who has a long history of chronic alcohol abuse presents with gouty tophi.
He is commenced on allopurinol but develops severe joint pains two days later.
On examination he has a temperature of 39°C, and erythematous swelling of his hands, knees and ankles.
Investigations reveal:

Urate	0.55 mmol/L	(0.23-0.46)
C reactive protein	150 mg/L	(<10)

Which of the following is the most likely cause for his presentation?

(Please select 1 option)

- Acute pyrophosphate arthropathy
- Acute rheumatoid arthritis
- Allopurinol allergy
- Septic arthritis
- Treatment with allopurinol

Answer Question

A 32-year-old man who has a long history of chronic alcohol abuse presents with gouty tophi.

He is commenced on allopurinol but develops severe joint pains two days later.

On examination he has a temperature of 39°C, and erythematous swelling of his hands, knees and ankles.

Investigations reveal:

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Which of the following is the most likely cause for his presentation?

Your Answer

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- Acute rheumatoid arthritis
- Allopurinol allergy
- Septic arthritis
- ✓ Treatment with allopurinol - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This man is having an acute attack of gout following the initiation of antihyperuricaemic (allopurinol) therapy.

This can be minimised by not starting allopurinol immediately during or shortly after an acute attack of gout, abstaining from alcohol bingeing and gradually increasing the dose of allopurinol.

Alcohol ingestion may also trigger an acute attack of gout, but in this case given the recent commencement of allopurinol, this is more likely to be the trigger.

The most common features of allopurinol hypersensitivity are rash and fever.

Joint sepsis affecting multiple joints is unlikely.

Acute pseudogout (pyrophosphate arthropathy) presents with inflammation of the larger joints, the knees being most commonly affected.

Given the history of alcohol abuse, gouty tophi and raised urate rheumatoid arthritis is not the most likely explanation.

Question

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Your Answer

Next

Question

A 23-year-old student presents with a four month history of low back pain and buttock pain worse in the morning. This improves with activity and with over the counter ibuprofen.

There is no significant past or family history.

On examination there is restricted chest wall expansion (3 cm) and the Schober's test is positive. Lumbar spine and pelvic radiographs are normal. Blood tests show a normal FBC, UEC and liver function tests. The CRP is 13 mg/L and the ESR is 32 mm/hr.

Which of the following is the most appropriate investigation for this patient?

(Please select 1 option)

- 99m-Tc bone scan
- HLA B-27
- MRI lumbar spine
- MRI sacroiliac joints
- PET-CT

Answer Question

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- MRI sacroiliac joints - This is the correct answer ✔
- ✓ PET-CT - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Based on the presence of back pain, raised inflammatory markers and reduced spinal mobility, this patient has ankylosing spondylitis (AS).

Ankylosing spondylitis (AS) is a chronic, potentially disabling, form of seronegative spondyloarthropathy which primarily involves the axial skeleton. The aetiology is not clearly understood, but it involves the interaction of genetic and environmental factors. The pathology mainly affects the entheses, where ligaments, tendons and capsules are attached to the bone.

Current British Society for Rheumatology recommendations state that the modified New York criteria should be used to diagnose ankylosing spondylitis:

Clinical criteria:

- Low back pain, present for more than three months, improved by exercise but not relieved by rest
- Limitation of lumbar spine motion in both the sagittal and frontal planes
- Limitation of chest expansion relative to normal values for age and sex

Radiological criteria:

- Sacroiliitis on x ray

Diagnosis:

- Definite AS if the radiological criterion is present plus at least one clinical criterion
- Probable AS if three clinical criteria are present alone or if the radiological criterion is present but no clinicial criteria are present.

It is widely accepted that making the diagnosis early is difficult because the onset is insidious, and there is no definitive diagnostic test. One study has stated that the average time from onset to diagnosis ranges from three to 11 years. Timely diagnosis therefore requires a high index of suspicion.

HLA-B27 is found in 90% patients with AS but also 8% of the general population and therefore should not be relied upon in making a diagnosis.

MRI can visualise sacroiliitis in patients with typical symptoms of AS but normal radiographs, and it is evolving as the most important diagnostic imaging tool in early disease. However, as yet a diagnosis of ankylosing spondylitis cannot be made on MRI findings alone and these cases are currently termed non-radiographic axial spondyloarthritis (SpA).

Both HLA-B27 and sacroiliitis on MRI play a major role in the recently proposed Assessment of SpondyloArthritis International Society (ASAS) diagnostic algorithm. This may replace the modified New York criteria in the future.

Next

- Definite AS if the radiological criterion is present plus at least one clinical criterion
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An x ray of the lumbar spine may show bridging syndesmophytes between the vertebral bodies in keeping with ankylosing spondylitis but this is not part of the diagnostic criteria, and it is a late sign.

Radiographic sacroiliitis is a requirement for patients to be eligible for anti-TNF treatment for AS.

The sacroiliitis is usually bilateral and symmetrical. It progresses from blurring of the subchondral bone plate to irregular erosions of the margins of the sacroiliac joints to sclerosis, narrowing, and finally fusion.

Erosions of the sacroiliac joint are generally seen earlier in the lower portion due to its synovial lining, and on the iliac side due to the thinner cartilage covering this side of the joint.

As x ray is not available as an option here, MRI of the sacroiliac joints is the most appropriate answer.

PET-CT and bone scans do not have a role in the diagnosis and investigation of ankylosing spondylitis.

Reference:

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010;22:375-80.

Question

A 23-year-old student presents with a four month history of low back pain and buttock pain worse in the morning. This improves with activity and with over the counter ibuprofen

Next

Question

A 45-year-old man has noted pain in his right knee for several years. There is no joint swelling. As he moves about during the day, the pain decreases.

The underlying disease process is probably which of the following?

(Please select 1 option)

- Osteoarthritis
- Osteochondroma
- Osteomalacia
- Osteopetrosis
- Osteoporosis

Answer Question

This question tests your understanding of disease prevalence, and the relative importance of certain symptoms and signs in differentiating disease. It is really important to realise that patients rarely present with the classical textbook descriptions of symptoms, in either the exam or clinical practice. From the options given above osteoarthritis is the *most likely* diagnosis.

References:

1. Bijlsma JW, Berenbaum F, Lafeber FP. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-2126.
2. NICE. Osteoarthritis (CG177).

Question

A 45-year-old man has noted pain in his right knee for several years. There is no joint swelling. As he moves about during the day, the pain decreases.
The underlying disease process is probably which of the following?

Your Answer

- Osteoarthritis - This is the correct answer ✔
- Osteochondroma
- Osteomalacia
- Osteopetrosis
- ✓ Osteoporosis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Osteoarthritis is one of the most common joint diseases, and its incidence is increasing with the age and weight of the population. It presents with pain, commonly affecting the knees, hips and small joints of the hand. Pathogenesis involves the localised loss of cartilage, with remodelling of adjacent bone. The associated pain is exacerbated by exercise and relieved by rest, although in advanced disease rest and night pain can develop. There may also be joint stiffness, typically in the morning or after rest. This stiffness wears off with movement, which can lead to less discomfort during the day (as is described here). Diagnosis is often late, and treatment is usually aimed at reducing pain and improving function rather than targeting the disease process.

Osteoporosis is characterised by progressive deterioration of bone micro-architecture, with associated decrease in bone mineral density. It is typically asyptomatic until the complicated by fracture when pain is exacerbated by movement.

Osteochondroma is a benign tumour of cartilage, which can be located about the knee. However, they commonly present in adolescence as a painless lump which grows with the bone. Pain is not a predominant symptom.

Osteomalacia is caused by a deficiency of vitamin D and presents with widespread bone pain and tenderness (especially lower back and hips), muscle weakness and lethargy,

Osteopetrosis, an uncommon inherited metabolic disorder, leads to 'brittle bones' that predispose to fractures. Isolated joint pain is not typically an associated feature.

This question tests your understanding of disease prevalence, and the relative importance of certain symptoms and signs in differentiating disease. It is really important to realise that patients rarely present with the classical textbook descriptions of symptoms, in either the exam or clinical practice. From the options given above osteoarthritis is the *most likely* diagnosis.

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2. NICE. Osteoarthritis (CG177).

Question

A 45-year-old man has noted pain in his right knee for several years. There is no joint

Next

Question

A 20-year-old woman presents with typical erythema nodosum. She has a low grade fever and bilateral ankle arthritis but no other symptoms and has no medical history. There is no history of travel abroad and she is on no medication.

Which of the following would be the most appropriate investigation for this patient?

(Please select 1 option)

- Barium enema
- Chest x ray
- Erythrocyte sedimentation rate (ESR)
- Upper gastointestinal (GI) endoscopy
- Viral titres

Answer Question

Incorrect

Explanation

Erythema nodosum is commonly idiopathic.

It can also be related to streptococcal infections, acute sarcoidosis or related to drugs such as the oral contraceptive pill, sulphonamides and penicillins.

Rarer causes include inflammatory bowel disease, tuberculosis, Behçet's disease and other connective tissue disorders.

In this case, a chest x ray would be the most helpful investigation as this may identify bilateral hilar lymphadenopathy which together with a bilateral ankle arthropathy would strongly support a diagnosis of acute sarcoidosis.

Investigation of the bowel is unlikely to help in the absence of any bowel symptoms.

Viral titres and ESR are non-specific.

Question

A 20-year-old woman presents with typical erythema nodosum. She has a low grade fever and bilateral ankle arthritis but no other symptoms and has no medical history. There is no history of travel abroad and she is on no medication.

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Your Answer

- Barium enema
- Chest x ray - This is the correct answer ✔
- Erythrocyte sedimentation rate (ESR)
- Upper gastointestinal (GI) endoscopy

Next

Question

A 52-year-old woman presents with increasing lower back pain for the last six months. The pain is increased by working as a floor-layer, and is worse in the evening.

There is no weight loss, night pain, or fever. Her back is stiff for 15 minutes in morning.

Over the last few months she has developed firm to hard swelling on several distal and proximal interphalangeal joints, and has anterior knee pain worsened by climbing stairs. A full blood count, ESR, and CRP done by the GP have been normal.

What is the diagnosis?

(Please select 1 option)

- Ankylosing spondylitis
- Discitis
- Generalised osteoarthritis
- Metastasis
- Osteoporosis

Answer Question

Explanation

This patient has generalised osteoarthritis (GOA), as there are OA related symptoms in at least three joint areas, namely:

- Bony swellings at distal and proximal IPJs termed Heberden's and Bouchard's nodes respectively
- Anterior knee pain, worse on climbing stairs, suggesting patella-femoral joint OA, and
- Low back pain, suggesting spinal degenerative changes.

Ankylosing spondylitis typically occurs in young men, and associates with pronounced early morning stiffness and buttock pain.

Osteoporosis is not symptomatic, unless accompanied by a spinal fracture. Osteoporotic spinal fractures present with acute pain which improves over a period of few weeks to a couple of months.

There are no red-flag symptoms to raise the possibility of discitis or malignancy.

Question

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What is the diagnosis?

Your Answer

- Ankylosing spondylitis
- Discitis
- Generalised osteoarthritis - This is the correct answer ✔

Next

Question

A 71-year-old man, a known case of rheumatoid arthritis, presented with blue fingers on exposure to cold weather. He had had a particularly difficult winter and one of his fingers has also become black. He was under regular followup of his rheumatologist who attributed the symptom to a systemic manifestation of rheumatoid arthritis itself.

The man also complained of generalized fatigue. Examination revealed moderate pallor, low BMI (16.3) and few axillary firm lymph nodes.

His blood anti-CCP level was >200 IU/L (N<5). What is the likely cause of his symptoms?

(Please select 1 option)

- Cold agglutinin disease
- Acute exacerbation of rheumatoid arthritis
- Axillary lymph nodes pressing on arteries
- Drug induced
- Primary Raynaud's disease

Answer Question

Explanation

This man with rheumatoid arthritis (RA) has developed new-onset Raynaud's phenomenon like features. There is also pallor and lymphadenopathy. This is suggestive of an NHL developing in this patient along with paraneoplastic cold agglutinin disease. This is a rare form of haemolytic anemia associated with lymphoproliferative disorders. Usually, treatment of the underlying condition leads to resolution of the hemolysis.

Long-standing RA patients can sometimes develop NHL. Usually, highly active disease has more chance of developing NHL.

Acute exacerbation of RA is more likely to have joint pain than Raynaud's phenomenon. This man did not complain of joint pain.

Axillary lymph nodes pressing on arteries is theoretically a possibility. But it is rare. Also, in NHL, the lymph nodes usually do not invade the arteries. They displace the blood vessels. Hence, chance of arterial compression is low.

There is no mention of any drug like beta blockers or ergotamine in this scenario.

Primary Raynaud's disease usually develops in middle-aged females. Also, it does not cause finger gangrene, as in this patient.

Question

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Your Answer

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- Acute exacerbation of rheumatoid arthritis

Next

Question

A 30-year-old architect presents with a three month history of low back pain, and stiffness. This is worse in the morning and improves with activity.

There are no other symptoms. There is no significant past or family history. He has tried over the counter ibuprofen (400 mg up to three times a day), which led to a significant improvement in his symptoms.

A lumbar spine and pelvic radiograph done by his GP is reported as normal. Blood tests show a normal FBC, UEC and liver function tests. The CRP is 23 mg/L and the ESR is 32 mm/hr.

What is the most likely diagnosis?

(Please select 1 option)

- Ankylosing spondylitis
- Discitis
- Mechanical back pain
- Osteoarthritis
- Spondylolisthesis

Answer Question

is worse with activity, and may be associated with nerve root compression.

Reference:

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010;22:375-80.

Question

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Your Answer

- Ankylosing spondylitis - This is the correct answer ✔
- Discitis
- Mechanical back pain
- Osteoarthritis
- ✓ Spondylolisthesis - Incorrect answer selected ✖

Rate this question

Next

Explanation

The combination of lower back pain and stiffness makes ankylosing spondylitis (AS) the most likely diagnosis in this scenario.

Ankylosing spondylitis is a chronic, potentially disabling, form of seronegative spondyloarthropathy which primarily involves the axial skeleton. The aetiology is not clearly understood, but it involves the interaction of genetic and environmental factors. The pathology mainly affects the entheses, where ligaments, tendons and capsules are attached to the bone.

Current British Society for Rheumatology recommendations state that the modified New York criteria should be used to diagnose ankylosing spondylitis:

Clinical criteria:

- Low back pain, present for more than three months, improved by exercise but not relieved by rest
- Limitation of lumbar spine motion in both the sagittal and frontal planes
- Limitation of chest expansion relative to normal values for age and sex

Radiological criteria:

- Sacroiliitis on x ray

Diagnose:

- Definite AS if the radiological criterion is present plus at least one clinical criterion
- Probable AS if three clinical criteria are present alone or if the radiological criterion is present but no clinicial criteria are present.

It is widely accepted that making the diagnosis early is difficult because the onset is insidious, and there is no definitive diagnostic test. One study has stated that the average time from onset to diagnosis ranges from three to 11 years. Timely diagnosis therefore requires a high index of suspicion.

HLA-B27 is found in 90% patients with AS but also 8% of the general population and therefore should not be relied upon in making a diagnosis.

MRI can visualise sacroiliitis in patients with typical symptoms of AS but normal radiographs and it is evolving as the most important diagnostic imaging tool in early disease.

However, as yet a diagnosis of ankylosing spondylitis cannot be made on MRI findings alone and these cases are currently termed non-radiographic axial spondyloarthritis (SpA).

Both HLA-B27 and sacroiliitis on MRI play a major role in the recently proposed Assessment of SpondyloArthritis International Society (ASAS) diagnostic algorithm. This may replace the modified New York criteria in the future.

Next

modified New York criteria in the future.

An x ray of the lumbar spine may show bridging syndesmophytes between the vertebral bodies in keeping with ankylosing spondylitis but this is not part of the diagnostic criteria, and it is a late sign.

Radiographic sacroiliitis is a requirement for patients to be eligible for anti-TNF treatment for AS. The sacroiliitis is usually bilateral and symmetrical. It progresses from blurring of the subchondral bone plate to irregular erosions of the margins of the sacroiliac joints to sclerosis, narrowing, and finally fusion.

Erosions of the sacroiliac joint are generally seen earlier in the lower portion due to its synovial lining, and on the iliac side due to the thinner cartilage covering this side of the joint.

Discitis is inflammation of the vertebral disc space, often related to infection. It typically presents with an insidious onset of pain and localised tenderness, which is worsens with activity (unlike the stiffness described here).

Mechanical back pain and osteoarthritis pain also improve with NSAIDs. However, they cause low back pain that is worse with activity, and relieved with rest.

Spondylolisthesis is the movement of one vertebra due to instability. It presents with pain which is worse with activity, and may be associated with nerve root compression.

Reference:

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010;22:375-80.

Question

A 30-year-old architect presents with a three month history of low back pain, and stiffness. This is worse in the morning and improves with activity.

There are no other symptoms. There is no significant past or family history. He has tried over the counter ibuprofen (400 mg up to three times a day), which led to a significant improvement in his symptoms.

A lumbar spine and pelvic radiograph done by his GP is reported as normal. Blood tests show a normal FBC, UEC and liver function tests. The CRP is 23 mg/L and the ESR is 32 mm/hr.

What is the most likely diagnosis?

Your Answer

Ankylosing spondylitis - This is the correct answer ✔

Next

Question

An 81-year-old female presents with bilaterally painful knees. There was no history of gastrointestinal diseases. On examination she had crepitus but had a full range of movement of both knees.

Which one of the following is the most appropriate initial treatment for her painful knees?

(Please select 1 option)

- Celecoxib
- Dihydrocodeine
- Naproxen
- Paracetamol
- Topical diclofenac

Answer Question

Incorrect

Explanation

This woman has osteoarthritis (OA) of the knees.

The principal goal of systemic therapy is to provide the most effective pain relief with the least associated toxicity. Paracetamol is the initial therapy recommended for the treatment of OA of the hip and knee. Studies have shown that the short term and long term efficacy of paracetamol is comparable with that of ibuprofen and naproxen in people with knee osteoarthritis. Topical non-steroidals (such as diclofenac) are usually second-line, and are used in conjunction with paracetamol.

Specific COX-2 inhibitors such as celecoxib have clinical benefit similar to that of traditional non-steroidal anti-inflammatory drugs (NSAIDs), but less gastrointestinal (GI) toxicity although issues remain regarding their cardiovascular risk. They may be used in patients with GI intolerance of traditional NSAIDs.

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- Dihydrocodeine
- Naproxen
- Paracetamol - This is the correct answer ✔

Next

Question

Which of the following has the greatest specificity for granulomatosis with polyangiitis?

(Please select 1 option)

- Atypical ANCA and positive antibodies to myeloperoxidase
- cANCA and positive antibodies to lactoferrin
- cANCA and positive antibodies to myeloperoxidase
- cANCA and positive antibodies to proteinase 3
- pANCA and positive antibodies to myeloperoxidase

Answer Question

response to therapy.

Reference:

Schönermarck U et al. Prevalence and spectrum of rheumatic diseases associated with proteinase 3-antineutrophil cytoplasmic antibodies (ANCA) and myeloperoxidase-ANCA. *Rheumatology (Oxford)*. 2001;40:178-84.

Question

Which of the following has the greatest specificity for granulomatosis with polyangiitis?

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- cANCA and positive antibodies to lactoferrin
- cANCA and positive antibodies to myeloperoxidase
- cANCA and positive antibodies to proteinase 3 - This is the correct answer ✔
- ✓ pANCA and positive antibodies to myeloperoxidase - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Antineutrophil cytoplasmic antibodies (ANCA) are detected in two ways:

1. An indirect immunofluorescence assay to identify specific staining patterns. Serum samples are mixed with neutrophils to allow any autoantibodies present to react with the cells.
2. An enzyme linked immunosorbant assay (ELISA) to quantify the antibodies against the two common target antigens (myeloperoxidase and proteinase-3).

Several different staining patterns and antigen specificities are recognised:

- Perinuclear (pANCA): fluorescence around the nucleus; 90% of antibodies which show this pattern are against myeloperoxidase (MPO)
- Cytoplasmic (cANCA): a coarse, clumpy, granular cytoplasmic staining of neturophils, which is associated with anti-proteinase-3 (PR3) antibodies in 85% of cases
- Atypical pANCA: patterns of neutrophil cytoplasmic and/or perinuclear fluorescence other than the two above, which occurs when neutrophil antigens other than MPO or PR3 are the antibody target. This is seen in most cases of ulcerative colitis, and some patients with Crohn's disease, drug-induced vasculitis and rheumatoid arthritis
- Negative ANCA: very little or no fluorescence.

If ANCA is positive, an additional test is performed to determine the titre of antibody present. A serum sample is diluted in steps and each dilution tested for the presence of the antibody. The greatest dilution at which the antibody can be detected is the titre (for example, 1:64 - serum tests remain positive after being diluted 64-fold).

cANCA and specificity for the PR-3 antigen is most specific for granulomatosis with polyangiitis. Proteinase-3 is a neutral serine proteinase present in azurophil granules of human neutrophils. Antibodies against it may be present in isolation without a cANCA. In granulomatosis with polyangiitis , the level of PR3 antibody and ANCA titre are related to disease activity and the antibodies typically disappear when the disease is in remission.

pANCA and/or antibody to MPO are far less specific than cANCA and can be present in a range of inflammatory conditions such as microscopic polyangiitis, Churg-Strauss syndrome and Goodpasture's syndrome. MPO and pANCA may also be present in systemic lupus erythematosus (SLE), rheumatoid arthritis, Sjogren syndrome and occasionally in chronic infections.

ANCA levels can change over time and, as such, can be used to monitor disease activity and/or response to therapy.

Reference:

Next

Question

A 34-year-old man presents with three weeks of right ankle pain and swelling.
He has urinary frequency, dysuria, painless rash on the glans penis, and a painful red right eye. There are no oral or genital ulcers.
What is the diagnosis?

(Please select 1 option)

- Behcet's disease
- Inflammatory bowel disease
- Reiter's syndrome
- Sarcoidosis
- Whipple's disease

Answer Question

- Fever.

Whipple's disease does not lead to urethritis.

Question

A 34-year-old man presents with three weeks of right ankle pain and swelling.
He has urinary frequency, dysuria, painless rash on the glans penis, and a painful red right eye. There are no oral or genital ulcers.
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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This patient has Reiter's syndrome (a reactive illness with concurrent arthritis, non-infective urethritis, and conjunctivitis).

Other manifestations of Reiter's syndrome include:

- Psoriasiform skin
- Nail and mucosal lesions
- Keratoderma blenorrhagica (palmoplantar pustulosis), and
- Circinate balanitis.

Behcet's disease is unlikely as there are no orogenital ulcers. Genital ulceration in Behcet's disease affects the scrotum in men and labia in women.

Peripheral arthropathy in inflammatory bowel disease (IBD) is oligoarticular, asymmetric, and predominantly involves the lower limbs. The lack of a history of diarrhoea and presence of urethritis, makes IBD unlikely.

Sarcoidosis leads to ankle and ocular involvement but does not lead to urethritis.

Similarly, Whipple's disease manifests as:

- Polyarticular symmetrical arthropathy
- Diarrhoea
- Weight loss
- Lymphadenopathy, and
- Fever.

Whipple's disease does not lead to urethritis.

Question

A 34-year-old man presents with three weeks of right ankle pain and swelling.

He has urinary frequency, dysuria, painless rash on the glans penis, and a painful red right eye. There are no oral or genital ulcers.

Next

Question

A 45-year-old man with poorly controlled diabetes presents with a painful swollen right knee and difficulty in walking which he has had for one day.

He has had no recent infections, rarely drinks alcohol, and there is no significant past or family history.

On examination, his temperature is 37.8°C. The right knee is warm, tender, and there is a tense right knee effusion. Knee flexion is painful and restricted.

Which of the following is the most appropriate investigation for this patient?

(Please select 1 option)

- Aspirate right knee
- Blood culture
- CRP
- MRI right knee
- Serum urate

Answer Question

Incorrect

Explanation

Septic arthritis must be excluded in an individual with acute mono-arthritis.

Septic arthritis may be oligo- or polyarticular in the immunosuppressed, and may present without pyrexia. Joint aspiration, followed by microscopy and culture of the synovial fluid is critical to the diagnosis of septic arthritis.

Examination of joint fluid under polarised microscope may show monosodium urate (negatively birefringent) or calcium pyrophosphate (weakly positively birefringent) crystals, and lead to a diagnosis of acute gout or acute CPP crystal arthritis (pseudogout).

Knee radiograph is likely to be normal in someone with inflammatory joint symptoms of short duration.

A blood culture may be negative in over half of patients with septic arthritis, and a high CRP does not differentiate between causes of acute hot swollen joint.

Knee MRI will show a wide range of non-specific changes in this scenario, for example, effusion, synovial proliferation, bone marrow oedema, none of which is specific to septic arthritis.

There is no role for serum urate in the diagnosis of acute gout. Serum urate, a negative acute phase reactant (like albumin), reduces during an acute illness.

Question

A 45-year-old man with poorly controlled diabetes presents with a painful swollen right knee and difficulty in walking which he has had for one day.

He has had no recent infections, rarely drinks alcohol, and there is no significant past or family history.

On examination, his temperature is 37.8°C. The right knee is warm, tender, and there is a tense right knee effusion. Knee flexion is painful and restricted.

Which of the following is the most appropriate investigation for this patient?

Your Answer

Aspirate right knee - This is the correct answer ✔

Next

Question

Which of the following statements is true of the immunology of rheumatoid arthritis?

(Please select 1 option)

- It is an example of an organ-specific disease
- It is likely that joint specific antigens have been sequestered during the time when immunological tolerance was being established
- Joint damage is the consequence of mast cell degranulation
- Rheumatoid factor is an antibody with reactivity to the heavy chain of IgG
- Rheumatoid factor is detected by a test utilising the patient's B lymphocytes

Answer Question

Incorrect

Explanation

Rheumatoid arthritis is associated with several antibodies such as rheumatoid factor, collagen antibody, capable of reaction at sites other than the joints.

Additionally, the disease is not confined to the joints.

Damage is mediated by several means, including macrophages activated by CD_4+ T cells, and by complement fixing immune complexes.

There is no evidence for the creation of joint-specific antibodies in development. All the components of the joint are present during fetal life.

The rheumatoid factor test utilises the patient's serum, to agglutinate cells coated with antibody. Rheumatoid factor (RF) is an antibody whose specificity is directed to a domain situated within the F_c portion of IgG. The rheumatoid factor may be of IgM, IgG or IgA class.

The conventional (agglutination) test, detects only IgM RF.

Question

Which of the following statements is true of the immunology of rheumatoid arthritis?

Your Answer

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- It is likely that joint specific antigens have been sequestered during the time when immunological tolerance was being established
- Joint damage is the consequence of mast cell degranulation
- Rheumatoid factor is an antibody with reactivity to the heavy chain of IgG - This is the correct answer ✔

Next

A 38-year-old woman from Pakistan presents with a six week history of non-productive cough, subjective fever, chills and progressively worsening shortness of breath.

She reports that recently she has been able to walk for only five to 10 minutes before having to stop and rest for breath. She has lost 2 kg over this period.

There is no recent travel history or guests visiting from endemic regions.

She has a 10 year diagnosis of rheumatoid arthritis for which she was commenced on etanercept six months ago.

Clinical examination demonstrated: temperature 38.0°C, pulse 100 regular, normal heart sounds, respiratory rate 18, mild mid zone inspiratory crepitations, SaO_2 98% (pre-exertion), 89% (post exertion).

Basic bloods show:

Hb	107 g/L	(115-165)
MCV	88 fL	(80-96)
WCC	4.9 $\times 10^9$/L	(4-11)
Westergren ESR	44/hr	(0-20)
CRP	34 mg/L	(<10)

Chest radiography demonstrates diffuse bilateral infiltrates.

Which test is most likely to be diagnostic?

(Please select 1 option)

- Aspergillosus precipitin
- Bronchoalveolar lavage
- High resolution CT
- *Mycoplasma*serology
- QuantiFERON

Answer Question

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Hb	107 g/L	(115-165)
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Your Answer

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- High resolution CT
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- ✓ QuantiFERON - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This question highlights the importance of knowing:

- Potential complications of anti-TNF use in rheumatoid arthritis
- Clinical presentation of *Pneumocystis jiroveci* (PCP).

This patient has developed *Pneumocystis jiroveci* (formerly *Pneumocystis carinii*) pneumonia after commencing anti-TNF therapy[1], a known risk factor.

The temporal relationship, dry cough, fever, weight loss and inducible post exertional hypoxia should point you towards this diagnosis.

Anti-TNF therapy also predisposes mycobacterial infection and this must be excluded before commencing treatment[2].

Her radiograph and a clinical history of 2 kg weight loss in two months (insignificant value) are not consistent with this diagnosis.

Reference:

1. Eguchi K. Efficacy and adverse events of etanercept in patients with rheumatoid arthritis: reports of postmarketing surveillance in Japan. *Nihon Rinsho.* 2007;65:1259-66.
2. The British Society for Rheumatology. Current BSR Guidelines.

Question

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Clinical examination demonstrated: temperature 38.0°C, pulse 100 regular, normal heart sounds, respiratory rate 18, mild mid zone inspiratory crepitations, SaO_2 98% (pre-exertion), 89% (post exertion)

Next

Question

A 37-year-old carpenter comes to the rheumatology clinic complaining of pain going from the lateral aspect of his elbow and down his forearm. He has been recently working excessive overtime on a housing project.

On examination he has pain on palpation over the lateral aspect of the humerus, and on resisted dorsiflexion of the wrist.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Carpal tunnel syndrome
- Cervical nerve root entrapment
- Lateral epicondylitis
- Olecranon bursitis
- Osteoarthritis of the elbow

Answer Question

Incorrect

Explanation

This patient has symptoms that are consistent with tennis elbow (lateral epicondylitis), most probably due to excessive forearm extension as a result of his work as a carpenter.

Lateral epicondylitis occurs due to inflammation of the extensor forearm muscle origins, and causes lateral elbow and upper forearm pain and tenderness. On examination, patients have pain and tenderness over the lateral epicondyle of the humerus, radiating into the forearm and pain on resisted dorsiflexion of the wrist and middle finger. Pain is exacerbated by active and resisted movements of the extensor muscles of the forearm.

Lateral epicondylitis is a self-limiting condition, and usually resolves within 6 months to 2 years. Whilst awaiting for resolution rest, ice, activity restriction and non-steroidal anti-inflammatory drugs can reduce symptoms. Physiotherapy has been shown to be beneficial. Steroids injections have been shown to be harmful in the long-term and are therefore not recommended. Glyceryl trinitrate patches over the painful area do improve outcome.

Question

A 37-year-old carpenter comes to the rheumatology clinic complaining of pain going from the lateral aspect of his elbow and down his forearm. He has been recently working excessive overtime on a housing project.

On examination he has pain on palpation over the lateral aspect of the humerus, and on resisted dorsiflexion of the wrist.

Which of the following is the most likely diagnosis?

Your Answer

- Carpal tunnel syndrome
- Cervical nerve root entrapment
- Lateral epicondylitis - This is the correct answer ✔

Next

Question

A 73-year-old female presents with difficulty opening jars and bottles.

On examination there is tenderness with crepitus and bony swelling over the base of the first metacarpal and wasting of the right thenar eminence.

Investigations reveal an ESR of 30 mm/1st hr (0-20), a C-reactive protein of 8 mg/L (<10), a urate concentration of 0.40 mmol/L (0.19-0.36) and a rheumatoid factor was 60 IU/L (<30).

An x ray of the right hand showed a loss of the joint space with articular sclerosis and osteophytes of the first carpo-metacarpal joint.

What is the most likely diagnosis?

(Please select 1 option)

- DeQuervain's tenosynovitis
- Gouty arthritis
- Osteoarthritis
- Pyrophosphate arthritis
- Rheumatoid arthritis

Answer Question

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What is the most likely diagnosis?

Your Answer

- DeQuervain's tenosynovitis
- Gouty arthritis
- Osteoarthritis - This is the correct answer ✔
- Pyrophosphate arthritis
- ✓ Rheumatoid arthritis - Incorrect answer selected ✖

Rate this question

Next

Explanation

This woman has clinical and radiological features consistent with osteoarthritis (OA) of the first right carpometacarpal (CMC) joint. Osteoarthritis is one of the most common joint disease, and its incidence is increasing with the age and weight of the population. It is characterised by joint pain, crepitus, stiffness after mobility, and limitation of motion, commonly affecting the knees, hips and small joints of the hand. The CMC joint is classically involved, and involved in gripping and twisting. Joint swelling is bony in nature, unlike the boggy swelling which occurs in inflammatory arthritis. Thenar wasting occurs in OA of the first CMC joint due to disuse.

Pathogenesis involves the localised loss of cartilage, with remodelling of adjacent bone. The associated pain is exacerbated by exercise and relieved by rest, although in advanced disease rest and night pain can develop. There may also be joint stiffness, typically in the morning or after rest. Diagnosis is often late, and treatment is usually aimed at reducing pain and improving function rather than targeting the disease process.

This woman's erythrocyte sedimentation rate (ESR) is not significantly raised and her C reactive protein (CRP) is within normal range making an inflammatory arthritis such as rheumatoid arthritis unlikely.

A positive rheumatoid factor does not make the diagnosis of rheumatoid arthritis. The frequency of positive rheumatoid factor in normal individuals of age over 70 is upto 10-20%.

The predominant feature of gouty arthritis is pain, and it rarely affects the hands. Pyrophosphate arthropathy can complicate osteoarthritis but it usually presents with acute onset large joint monoarthritis.

De Quervain's disease is a common pathology which consists of a stenosing tenosynovitis of the first dorsal compartment of the wrist. It typically presents with pain on the radial aspect of the wrist, with associated swelling and tenderness. Treatment is with splinting, with or without corticosteroid injection.

Reference:

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-26.
2. Ilyas AM, at al. De quervain tenosynovitis of the wrist. *J Am Acad Orthop Surg.* 2007;15:757-64.
3. NICE. Osteoarthritis (CG177).
4. Peter JB, Marmor L. Osteoarthritis of the first carpometacarpal joint. *Calif Med.* 1968;109:116-20.

Next

Question

A 29-year-old lady presents with recurrent troublesome acne, episodes of palmo-plantar pustules, and painful swelling of the acromio-clavicular joint.
Recent blood tests are:

Hb	121 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	36 mm/hr	(0-20)
Bilirubin	17 µmol/L	(1-22)
ALT	34 IU/L	(5-35)
AST	36 IU/L	(1-31)
Alkaline phosphatase	215 U/L	(45-105)

Urea, electrolytes and creatinine are normal.
What is the diagnosis?

(Please select 1 option)

- Multicentric reticulohistiocytosis
- Osteomyelitis
- Reactive arthritis
- Reiter's syndrome
- SAPHO syndrome

Answer Question

Platelet	270 $\times 10^9$/L	(150-400)
ESR	36 mm/hr	(0-20)
Bilirubin	17 µmol/L	(1-22)
ALT	34 IU/L	(5-35)
AST	36 IU/L	(1-31)
Alkaline phosphatase	215 U/L	(45-105)

Urea, electrolytes and creatinine are normal.
What is the diagnosis?

Your Answer

- Multicentric reticulohistiocytosis
- Osteomyelitis
- Reactive arthritis
- Reiter's syndrome
- ✓ SAPHO syndrome - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This patient has SAPHO syndrome. SAPHO is an acronym for synovitis, acne, pustulosis, hyperostosis, and osteitis. It is characterised by osteosclerotic bone lesions, sterile osteomyelitis, and a variety of skin lesions.

- Synovitis - may be present rarely, and associates with erosions.
- Acne - may be severe (conglobate or fulminans) and recur with new bony involvement.
- Pustulosis - palmo-plantar pustulosis occurs in approximately 50% of patients, other skin lesions may include psoriasis, hidradenitis suppurativa, acne, and rarely Sweet's syndrome.
- Hyperostosis (increase in bone substance) and osteitis (inflammation of the bones) - the bony lesions typically involve the acromioclavicular, and sternoclavicular joints. Other sites include anterior chest wall, sternum, clavicle, pubic symphysis, spine, and mandible. These lesions are visualised on 99m technetium bone scan or MRI.

The cause of the SAPHO syndrome is unknown. The skin lesions are characterised by neutrophilic pseudoabscesses. Bone biopsy can reveal sterile osteomyelitis.

Diagnosis should be suspected when there is an association of rheumatic pain with a pustular skin disease.

SAPHO has no specific treatment, and some cases remit spontaneously. Typical treatment can be used for the arthritic symptoms (i.e. non-steroidal anti-inflammatories and disease modifying anti-rheumatic agents). Isotretinoin and aciretin can be used to treat the skin disease. In the more severe cases corticosteroids, calcitonin, bisphosphonates and TNF-inhibitors can be used.

Question

A 29-year-old lady presents with recurrent troublesome acne, episodes of palmo-plantar pustules, and painful swelling of the acromio-clavicular joint.

Recent blood tests are:

Hb	121 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)

Next

Question

A 57-year-old woman presents to the clinic with increasing shortness of breath. She has a history of hypertension for which she takes amlodipine, reflux oesophagitis, and Raynaud's phenomenon.

On examination you notice that her skin has a speckled appearance, and she has peripheral calcinosis on examination of her hands. Respiratory examination reveals inspiratory crackles consistent with pulmonary fibrosis.

Investigations reveal:

Haemoglobin	104 g/L	(115-160)
White cell count	9.2 $\times 10^9$/L	(4-10)
Platelets	190 $\times 10^9$/L	(150-400)
Sodium	140 mmol/L	(134-143)
Potassium	4.9 mmol/L	(3.5-5)
Creatinine	139 µmol/L	(60-120)
SaO_2 on air	94%	(≥96%)
CXR	Interstitial shadowing consistent with fibrosis	

Which of the following autoantibodies is most associated with her respiratory picture?

(Please select 1 option)

- Anti-centromere antibodies
- Anti-PM/Scl antibodies
- Anti-Scl-70 antibodies
- Anti-smooth muscle antibodies
- Rheumatoid factor antibodies

Answer Question

White cell count	9.2 $\times 10^9$/L	(4-10)
Platelets	190 $\times 10^9$/L	(150-400)
Sodium	140 mmol/L	(134-143)
Potassium	4.9 mmol/L	(3.5-5)
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CXR	Interstitial shadowing consistent with fibrosis	

Which of the following autoantibodies is most associated with her respiratory picture?

Your Answer

- Anti-centromere antibodies
- Anti-PM/Scl antibodies
- Anti-Scl-70 antibodies - This is the correct answer ✔
- Anti-smooth muscle antibodies
- ✓ Rheumatoid factor antibodies - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This woman has a clinical picture which is consistent with systemic sclerosis.

Systemic sclerosis is a chronic autoimmune disease characterised by increased fibroblast activity and fibrosis in a number of different organ systems. Ninety to 95% of patients have positive antinuclear antibodies.

There are two major subtypes: limited cutaneous and diffuse cutaneous.

CREST syndrome is an older term for the limited cutaneous form (**c**alcinosis, **R**aynauds' phenomenon, o**e**osophageal dysmotility, **s**clerodactyly, **t**elangiectasia).

Patients with systemic sclerosis can present with:

- Skin abnormalities
- Musculoskeletal changes
- Gastrointestinal complications
- Pulmonary disease
- Renal crisis, and
- Dry eyes and mouth.

Pulmonary fibrosis is associated with anti-Scl-70 antibodies in up to 70% of cases.

Pulmonary involvement is the second commonest organ involvement after oesophageal disease and is the leading cause of death.

Anticentromere antibodies are more commonly seen in patients without pulmonary fibrosis.

Anti-PM/Scl antibodies are a rarely encountered type of antinuclear antibodies. They are mainly seen in association with idiopathic myositis, systemic sclerosis overlap syndromes, polymyositis and dermatomyositis.

Anti-smooth muscle antibodies are associated with autoimmune hepatitis.

Rheumatoid factor is non-specific, but is seen at increased frequency in patients with rheumatoid arthritis.

Reference:

Vandergheynst F, et al. Anti-pm/scl antibodies in connective tissue disease: Clinical and biological assessment of 14 patients. *Clin Exp Rheumatol.* 2006;24:129-33.

Next

A 25-year-old lady presents with rapidly worsening Raynaud's phenomenon, and skin tightness.

On examination, there is sclerodactyly, skin thickening to the shoulders, and bi-basal crepitations. Muscle strength is normal.

Recent blood tests are:

Haemoglobin	121 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	36 mm/hr	(0-20)
Anti-nuclear antibody	positive (1:6400)	(Negative at 1:20 Dil)
Anti-centromere antibody	negative	(Negative at 1:40 Dil)
Anti-Scl70 antibody	positive (1:640)	(Negative)
Anti-U1RNP	negative	(Negative)
Anti-Ro/La antibody	negative	(Negative)
Urea, electrolytes and creatinine	Normal	

What is the diagnosis?

(Please select 1 option)

- Dermatomyositis
- Diffuse cutaneous systemic sclerosis
- Limited cutaneous systemic sclerosis
- Mixed connective tissue disease
- Sjögren's syndrome

Answer Question

ESR	36 mm/hr	(0-20)
Anti-nuclear antibody	positive (1:6400)	(Negative at 1:20 Dil)
Anti-centromere antibody	negative	(Negative at 1:40 Dil)
Anti-Scl70 antibody	positive (1:640)	(Negative)
Anti-U1RNP	negative	(Negative)
Anti-Ro/La antibody	negative	(Negative)
Urea, electrolytes and creatinine	Normal	

What is the diagnosis?

Your Answer

- Dermatomyositis
- Diffuse cutaneous systemic sclerosis - This is the correct answer ✔
- Limited cutaneous systemic sclerosis
- Mixed connective tissue disease
- ✓ Sjögren's syndrome - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This patient has diffuse cutaneous systemic sclerosis with pulmonary fibrosis.
Diffuse cutaneous systemic sclerosis is characterised by

- Skin thickening proximal to the knees and elbows
- Anti-Scl70 antibodies
- Pulmonary fibrosis, and rarely by
- Scleroderma renal crisis.

Limited cutaneous systemic sclerosis is characterised by

- Skin thickening distal to knees, and elbows (although face may be involved in either type)
- Anti-centromere antibodies, and
- A tendency to develop pulmonary hypertension.

She does not have any muscle weakness, or rash making dermatomyosisits unlikely. Dermatomyosisits associates with Gottron's papules on extensor surface of hands, and a periorbital heliotrope rash.
The co-existence of myositis, arthritis, and scleroderma in those with anti-U1 RNP antibodies suggests mixed connective tissue disease. This is clearly not the case here.

Question

A 25-year-old lady presents with rapidly worsening Raynaud's phenomenon, and skin tightness.
On examination, there is sclerodactyly, skin thickening to the shoulders, and bi-basal crepitations. Muscle strength is normal.
Recent blood tests are:

Haemoglobin	121 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)

Next

Question

A 69-year-old lady presents for follow up of her rheumatoid arthritis. She complains of only satisfactory symptomatic control, but admits to intermittently missed doses.

She has a past medical history of a perforated gastric ulcer, likely secondary to chronic alcohol abuse. She consumes approximately 45 units of alcohol per week.

A recent DXA scan is performed and demonstrates a T-score of −4.0 SD below the peak bone mineral density.

What is the best strategy for primary prevention of osteoporosis?

(Please select 1 option)

- Alendronate
- Calcium and vitamin D
- Denosumab
- Parathyroid hormone replacement
- Raloxifene

Answer Question

Question

A 69-year-old lady presents for follow up of her rheumatoid arthritis. She complains of only satisfactory symptomatic control, but admits to intermittently missed doses.

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What is the best strategy for primary prevention of osteoporosis?

Your Answer

- Alendronate
- Calcium and vitamin D
- Denosumab - This is the correct answer ✔
- Parathyroid hormone replacement
- ✓ Raloxifene - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This question covers the following learning points:

- Treatment modalities for the primary prevention of osteoporosis in postmenopausal women
- Risk factors for the development of osteoporosis in postmenopausal women.

This is a 69-year-old lady with two independent clinical risk factors for fracture (rheumatoid arthritis, alcohol intake greater than 4 units per day) and a correspondingly low T-score.

These factors make her eligible for primary prevention with a bisphosphonate. Bisphosphonate therapy is relatively contraindicated however, given her history of gastric ulcer perforation and ongoing alcohol abuse. More, it is doubtful that she would comply with the special instructions relating to the administration of a bisphosphonate.

For these reasons, current NICE guidance recommends denosumab[1], a monoclonal antibody targeted against the nuclear factor-kappa ligand (RANKL) involved in osteoclast activation.

Raloxifene[2] is not recommended for the primary prevention of osteoporotic fragility fractures in postmenopausal women.

Reference:

1. NICE. Denosumab for the prevention of osteoporotic fractures in postmenopausal women (TA204).
2. NICE. Alendronate, etidronate, risedronate, raloxifene and strontium ranelate for the primary prevention of osteoporotic fragility fractures in postmenopausal women (TA160).

Question

A 69-year-old lady presents for follow up of her rheumatoid arthritis. She complains of only satisfactory symptomatic control, but admits to intermittently missed doses.

She has a past medical history of a perforated gastric ulcer, likely secondary to chronic alcohol abuse. She consumes approximately 45 units of alcohol per week.

A recent DXA scan is performed and demonstrates a T-score of −4.0 SD below the peak bone mineral density.

What is the best strategy for primary prevention of osteoporosis?

Next

Question

A 67-year-old woman with a long history of rheumatoid arthritis comes to the clinic for review.

Her rheumatoid is poorly controlled and she is receiving regular doses of methotrexate and low dose prednisolone. Most recently she has begun to suffer from increasing pitting oedema.

On examination her BP is 145/84 mmHg and her pulse is 85. She has pitting oedema to the mid shin.

Investigations show

Haemoglobin	110 g/L	(115-160)
White cell count	8.3 $\times 10^9$/L	(4-11)
Platelets	159 $\times 10^9$/L	(150-400)
Serum sodium	140 mmol/L	(135-146)
Serum potassium	4.4 mmol/L	(3.5-5)
Creatinine	130 µmol/L	(79-118)
Serum albumin	24 g/L	(36-50)
Urine	Protein ++	

Which of the following is the most appropriate investigation likely to elucidate the underlying diagnosis?

(Please select 1 option)

- Liver biopsy
- Rectal biopsy
- Renal biopsy
- Renal ultrasound scan
- Skin biopsy

Answer Question

Platelets	159 $\times 10^9$/L	(150-400)
Serum sodium	140 mmol/L	(135-146)
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Creatinine	130 µmol/L	(79-118)
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Urine	Protein ++	

Which of the following is the most appropriate investigation likely to elucidate the underlying diagnosis?

Your Answer

- Liver biopsy
- Rectal biopsy - This is the correct answer ✔
- Renal biopsy
- Renal ultrasound scan
- ✓ Skin biopsy - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

This patient has poorly controlled rheumatoid arthritis and her proteinuria and hypoalbuminaemia raises the possibility of systemic amyloidosis.

Secondary amyloid A (AA) amyloidosis is an important complication of rheumatoid arthritis (RA). It is caused by extracellular accumulation of AA fibrils, derived from the acute-phase-reactant serum amyloid A protein, within various tissues and organs. It is a significant cause of increased morbidity and early death in RA. Studies have shown that deposits of AA fibrils are not uncommon in RA (~20%). Any patient with longstanding RA who develops proteinuria, or intractable diarrhoea, should be investigated for AA amyloidosis.

No blood test is diagnostic for amyloidosis. Diagnosis therefore requires a biopsy and histological examination.

In order to start treatment as early as possible, a high-sensitivity site with a safe technique should be chosen. Subcutanous fat, spleen, adrenal, liver, labia, salivary gland and gastrointestinal tract are frequent sites of AA amyloid deposition. Non-invasive techniques, such as renal ultrasound, can be useful in assessing organ involvement, but cannot establish whether the findings are definitely related to amyloid.

Gastrointestinal (GI), rectal and subcutaneous fat biopsies are the procedures of choice. The amount of amyloid in fat is low, and therefore it is not used routinely in the UK. GI and rectal are recommended because their sensitivities are high and they can be performed as an outpatient procedure. The incidence correlates strongly with renal biopsy, but the procedure is associated with much lower risk.

The progression of amyloidosis associated with systemic inflammatory disorders is slowed by better control of the underlying condition; as such in this case she should be sent for rheumatology review to determine the most appropriate way to step up her rheumatoid arthritis therapy.

Reference:

1. Cunnane G, Whitehead AS. Amyloid precursors and amyloidosis in rheumatoid arthritis. *Baillieres Best Pract Res Clin Rheumatol.* 1999;13:615-28.
2. Husby G. Amyloidosis and rheumatoid arthritis. *Clin Exp Rheumatol.* 1985;3:173-80.
3. Kuroda T, et al. Diagnosis and Treatment of AA Amyloidosis with Rheumatoid Arthritis: State of the Art In: Sarantseva, S. (ed.) *Amyloidosis - Mechanisms and Prospects for Therapy.* InTech; 2011.
4. Nakamura T. Clinical strategies for amyloid A amyloidosis secondary to rheumatoid arthritis. *Mod Rheumatol.* 2008;18:109-18.

Next

Question

A 33-year-old female presents with pain at the elbow which she has been aware of for the last two weeks.
Which of the following would be consistent with a diagnosis of tennis elbow?

(Please select 1 option)

- Pain on extension of the elbow
- Pain on flexion of the fingers against resistance
- Pain on pressure over the medial epicondyle
- Pain on pronation of the forearm
- Pain on wrist extension against resistance

Answer Question

Explanation

Tennis elbow is due to lateral epicondylitis and is due to overuse/strain of the extensor muscles of the forearm. It is most common in the fourth decade.

On examination there is pain in the region of the lateral epicondyle during resisted extension of the fingers and wrist.

Management is initially with a reduction in strenuous activity for at least six weeks, with or without a wrist splint.

Local injection with corticosteroid and anaesthetic agents is also a possibility. Surgical treatment is reserved for those with refractory symptoms.

Reference:

Wheeless' Textbook of Orthopaedics. Tennis Elbow - Lateral Epicondylitis.

Question

A 33-year-old female presents with pain at the elbow which she has been aware of for the last two weeks.

Which of the following would be consistent with a diagnosis of tennis elbow?

Your Answer

- Pain on extension of the elbow
- Pain on flexion of the fingers against resistance
- Pain on pressure over the medial epicondyle
- Pain on pronation of the forearm
- ✓ Pain on wrist extension against resistance - Correct ✔

Next

Question

A 76-year-old man presents with a painful, swollen right knee and difficulty in walking for three days.

On examination, his temperature is 36.8°C. The right knee is red, swollen, warm and tender and has restricted movement.

The knee aspirate shows no organisms on Gram stain, 200 leucocytes/mm^3, and weakly positively birefringent crystals on polarised light microscopy.

The results of recent blood tests are:

Haemoglobin	123 g/L	(130-180)
WBC	14.3 $\times 10^9$/L	(4-11)
Neutrophils	88%	(40-75)
Platelet	340 $\times 10^9$/L	(150-400)
Urea, electrolytes and creatinine	Normal	
ESR	79 mm/hr	(0-20)
Urate	321 µmol/L	(210-415)

What is the most likely diagnosis?

(Please select 1 option)

- Gout
- Osteoarthritis
- Pseudogout
- Reactive arthritis
- Septic arthritis

Answer Question

Haemoglobin	123 g/L	(130-180)
WBC	14.3 $\times 10^9$/L	(4-11)
Neutrophils	88%	(40-75)
Platelet	340 $\times 10^9$/L	(150-400)
Urea, electrolytes and creatinine	Normal	
ESR	79 mm/hr	(0-20)
Urate	321 µmol/L	(210-415)

What is the most likely diagnosis?

Your Answer

- Gout
- Osteoarthritis
- Pseudogout - This is the correct answer ✔
- Reactive arthritis
- ✓ Septic arthritis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This presentation could be consistent with a number of diagnoses. However, the presence of positively birefringent crystals make pseudogout (calcium pyrophosphate arthropathy) the most likely diagnosis. It is critical to exclude septic arthritis, as it is potentially rapidly destructive, but the negative gram stain and low synovial fluid white cell count make this less likely.

Classically pseudogout presents with a rapid onset of inflammatory symptoms and signs. Risk factors include:

- age
- osteoarthritis, and
- metabolic disturbance (e.g. primary hyperparathyroidism, haemochromatosis).

Management of acute episodes include cool packs, rest, joint aspiration and steroid injection. Prophylaxis is typically with oral NSAIDs and/or low-dose colchicine. Oral corticosteroids, methotrexate or hydroxycholoroquine can be used in resistant disease. Asymptomatic crystal deposition does not need treatment. The differential does include gout but isolated monoarthritis of the knee is less common than with pseudogout. Distinguishing between the two depends on analysis of the crystals with calcium pyrophosphate crystals demonstrating no or positive birefringence and urate crystals demonstrating a negative birefringence under polarising light.

The white cell count in septic arthritis is typically more than 2000/mm^3, with more than 75% polymorphonuclear leucocytes. Gram stain may be positive.

Osteoarthritis of the knee usually presents as a more chronic mechanical joint pain.

Reactive arthritis is more common in younger patients, and there is a typically a history of infection (usually gastroenterological or sexually-transmitted) which pre-dates the onset of joint symptoms.

Reference:

1. Zhang W, et al. European League Against Rheumatism recommendations for calcium pyrophosphate deposition. Part I: terminology and diagnosis. *Ann Rheum Dis.* 2011;70:563-70.
2. Zhang W, et al. EULAR recommendations for calcium pyrophosphate deposition. Part II: management. *Ann Rheum Dis.* 2011;70:571-5

Next

Question

A 45-year-old man is referred to the outpatient clinic with a three day history of a painful swollen left knee. He drinks 34 units of alcohol per week. His mother has psoriasis.

Physical examination demonstrates nail pitting. ESR is elevated at 90 mm/hr. Serum white cell count is normal.

What is the next most appropriate step in his management?

(Please select 1 option)

- Check rheumatoid factor, anticyclic citrullinated peptide antibody and knee radiograph
- Commence allopurinol
- Commence NSAID
- Commence oral steroids and a DMARD
- Joint aspiration and analysis of synovial fluid for Gram stain, microscopy and culture

Answer Question

Joint aspirate is the most crucial step in excluding a septic arthritis, and allows the timely commencement of surgical management and appropriate antibiotics.

Question

A 45-year-old man is referred to the outpatient clinic with a three day history of a painful swollen left knee. He drinks 34 units of alcohol per week. His mother has psoriasis.

Physical examination demonstrates nail pitting. ESR is elevated at 90 mm/hr. Serum white cell count is normal.

What is the next most appropriate step in his management?

Your Answer

- Check rheumatoid factor, anticyclic citrullinated peptide antibody and knee radiograph
- Commence allopurinol
- Commence NSAID
- Commence oral steroids and a DMARD
- ✓ Joint aspiration and analysis of synovial fluid for Gram stain, microscopy and culture - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This man has presented with an acute onset monoarthritis.

Despite confounders in the history (alcohol use suggesting gout, nail pitting highlighting the possibility of psoriasis) a destructive septic arthritis is a potential diagnosis and it must be excluded as a matter of urgency.

Although serum WCC is usually raised in systemic infection it is not necessarily always raised in a localised infection such as septic arthritis, especially early in the disease course.

Checking rheumatoid factor, anticyclic citrullinated peptide antibody and knee radiograph is incorrect in this instance. This not a typical history of rheumatoid arthritis and waiting for immunological investigation prior to initiating treatment is not appropriate. A radiograph may be appropriate, but in the acute stages of septic arthritis it may be normal.

Commencing allopurinol is incorrect. This may be gout, but septic arthritis requires urgent orthopaedic management and you need a joint aspirate to exclude it prior to starting treatment for another condition.

Commencing NSAID is incorrect. Whilst analgesia is appropriate, alone it risks missing a serious diagnosis.

Commencing oral steroids and a DMARD is incorrect. A diagnosis needs to be made prior to commencing such medications. These are used in rheumatoid arthritis which is unlikely to be the diagnosis in this case.

Joint aspirate is the most crucial step in excluding a septic arthritis, and allows the timely commencement of surgical management and appropriate antibiotics.

Question

A 45-year-old man is referred to the outpatient clinic with a three day history of a painful swollen left knee. He drinks 34 units of alcohol per week. His mother has psoriasis.

Physical examination demonstrates nail pitting. ESR is elevated at 90 mm/hr. Serum white cell count is normal.

What is the next most appropriate step in his management?

Your Answer

Next

Question

A 34-year-old man with psoriasis has a three week history of painful swollen right knee and difficulty walking. He has early morning stiffness of over an hour.

He drinks six units of alcohol/week and has not had any recent infections.

On examination there is a right knee effusion, and swollen and tender distal interphalangeal joints in right hand index and middle finger.

Here are the results of recent blood tests:

Haemoglobin	140 g/L	(130-180)
WBC	9 $\times 10^9$/L	(4-11)
Neutrophils	6 $\times 10^9$/L	(1.5-7.0)
ESR	45 mm/hr	(0-15)
Urea, electrolytes and creatinine	Normal	
Rheumatoid factor	Negative	

What is the most likely diagnosis?

(Please select 1 option)

- Gout
- Osteoarthritis
- Psoriatic arthritis
- Reactive arthritis (RA)
- Rheumatoid arthritis

Answer Question

Haemoglobin	140 g/L	(130-180)
WBC	9 $\times 10^9$/L	(4-11)
Neutrophils	6 $\times 10^9$/L	(1.5-7.0)
ESR	45 mm/hr	(0-15)
Urea, electrolytes and creatinine	Normal	
Rheumatoid factor	Negative	

What is the most likely diagnosis?

Your Answer

- Gout
- Osteoarthritis
- Psoriatic arthritis - This is the correct answer ✔
- Reactive arthritis (RA)
- ✓ Rheumatoid arthritis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This patient has psoriatic arthritis.

Among people who develop psoriatic arthritis, two-thirds develop joint symptoms after skin involvement. In the absence of psoriasis, a positive family history of psoriasis in a first degree relative supports the diagnosis of psoriatic arthritis.

RA is unlikely as there is asymmetrical joint involvement - with predominant involvement of the distal interphalangeal (DIP) joints in the hands. DIP joint involvement is a distinctive feature of psoriatic arthritis. DIP joint involvement associates with dactylitis, nail pitting and onycholysis (separation of nail from nail bed).

The absence of preceding infection makes reactive arthritis unlikely.

Gout is unlikely.

The alcohol intake is not excessive, and except for male gender, there is no other risk factor, for example, age greater than 40 years, diuretic use, renal failure and solid organ transplant.

Question

A 34-year-old man with psoriasis has a three week history of painful swollen right knee and difficulty walking. He has early morning stiffness of over an hour.

He drinks six units of alcohol/week and has not had any recent infections.

On examination there is a right knee effusion, and swollen and tender distal interphalangeal joints in right hand index and middle finger.

Here are the results of recent blood tests:

Haemoglobin	140 g/L	(130-180)
WBC	9 $\times 10^9$/L	(4-11)
Neutrophils	6 $\times 10^9$/L	(1.5-7.0)
ESR	45 mm/hr	(0-15)
Urea, electrolytes and creatinine	Normal	
Rheumatoid factor	Negative	

Next

Question

An 84-year-old woman is referred to the rheumatology clinic for review. She has been suffering from arthritis affecting her right hip managed with analgesics by her GP for the past year. An x ray has revealed extensive joint destruction and routine bloods show a raised alkaline phosphatase. She has a past medical history of ischaemic heart disease, with an inferior MI five years earlier, but is otherwise well.

On examination her BP is 135/80 mmHg, pulse is 70bp m and regular. Her chest is clear. Her abdomen is soft and non-tender, and her BMI is 26. Movement of the left hip is severely limited with virtually no external rotation, and flexion limited to only 35 degrees.

Investigations:

Hb	118g/l	115-160
WCC	6.9 $\times 10^9$/L	6-10
PLT	169$\times 10^9$/L	150-400
Na	139 mmol/l	135-145
K	4.0 mmol/l	3.5-5.5
Cr	102 µmol/l	50-90
Ca2+	2.4 mmol/l	2.1-2.65
Albumin	35 g/l	30-50
Alkaline phosphatase	361 U/l	40-120

X ray hip and pelvis: extensive destruction of left hip joint, bone hypertrophy, and almost total loss of joint space.

Which of the following is the most likely diagnosis?

(Please select 1 option)

Answer Question

Na	139 mmol/l	135-145
K	4.0 mmol/l	3.5-5.5
Cr	102 µmol/l	50-90
Ca2+	2.4 mmol/l	2.1-2.65
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Which of the following is the most likely diagnosis?

(Please select 1 option)

- Osteoarthritis
- Osteomalacia
- Osteoporosis
- Paget's disease
- Primary hyperparathyroidism

Answer Question

K	4.0 mmol/l	3.5-5.5
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X ray hip and pelvis: extensive destruction of left hip joint, bone hypertrophy, and almost total loss of joint space.

Which of the following is the most likely diagnosis?

Your Answer

- Osteoarthritis
- Osteomalacia
- Osteoporosis
- Paget's disease - This is the correct answer ✔
- ✓ Primary hyperparathyroidism - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

The answer is Paget's disease. Monoarticular Paget's disease is relatively common, and is characterised by extensive joint destruction with normal serum calcium and elevated alkaline phosphatase. Diagnosis is a clinical one based on x ray findings and elevation in alkaline phosphatase in the absence of other abnormal biochemistry. Bisphosphonates are the mainstay of therapy with treatment objective to control pain rather than to normalise alkaline phosphatase.

Osteomalacia and osteoarthritis are ruled out because of the normal calcium and abnormal alkaline phosphatase. Osteoporosis is a systemic disease, so severe monoarticular involvement would be unusual, and primary hyperparathyroidism is associated with hypercalcaemia.

Question

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Next

Question

A 48-year-old female with rheumatoid arthritis has the following full blood count results:

Haemoglobin	114 g/L	(120-165)
Platelets	470 $\times 10^9$/L	(150-450)
White Cell Count	9.0 $\times 10^9$/L	(4-10)
MCV	102 fL	(83-95)

Which drug is she likely to be taking?

(Please select 1 option)

- Ciclosporin
- Hydroxychloroquine
- Leflunomide
- Methotrexate
- Myocrisin

Answer Question

Explanation

Leflunomide is associated rarely with anaemia, thrombocytopaenia and eosinophilia. Ciclosporin may be associated with a mild anaemia. Methotrexate may be associated with haematopoietic suppression, leading to profound, and sometimes sudden leucopenia and thombocytopaenia.

Myocrisin may also rarely lead to blood disorders, pancytopaenia and leucopenia. The elevated platelet count here probably relates to the rheumatoid arthritis itself as a late component of the acute phase response.

Macrocytosis is seen as a consequence of long term methotrexate therapy. Co-existent B12 or folate deficiency or thyroid disease should be excluded.

Question

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- Hydroxychloroquine
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- Methotrexate - This is the correct answer ✔
- Myocrisin - Incorrect answer selected ✖

Next

Question

A 79-year-old female suffers a fractured neck of femur following a fall at home.
Investigations are normal but her x ray shows the bones to be rather 'thin'. It is assumed that she is osteoporotic and she is started on alendronate therapy.
Which of the following is correct concerning this drug?

(Please select 1 option)

- Enhances vitamin D action on bone
- Increases absorption of calcium
- Increases osteoblast activity
- Increases the action of oestrogen on bone
- Inhibits osteoclast activity

Answer Question

Correct

Explanation

The bisphosphonates of which alendronate is one, increase bone mineralisation by inhibiting osteoclastic activity.
They have been demonstrated in numerous studies to reduce subsequent risk of fracture.

Question

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Next

Question

A 46-year-old lady with rheumatoid arthritis whose regular medications include methotrexate, folic acid, Adcal-D3, ibuprofen and paracetamol attends the GP surgery with a sore throat.

On examination she has enlarged tonsils with pus, tender cervical lymphadenopathy and a fever of 38.5°C. There is no cough.

Which of the following options represents the most appropriate management plan?

(Please select 1 option)

- Admit the patient to hospital as an emergency with suspected neutropaenic sepsis
- Commence benzylpenicillin 500 mg QDS for 10 days
- Give the patient advice about self-management of sore throat and advise to return if she does not improve in the next five days
- Send an urgent venous blood sample for full bood count and commence phenoxymethylpenicillin 500 mg QDS for 10 days
- Send an urgent venous blood sample for full blood count and give the patient advice about self-management of sore throat

Answer Question

A 46-year-old lady with rheumatoid arthritis whose regular medications include methotrexate, folic acid, Adcal-D3, ibuprofen and paracetamol attends the GP surgery with a sore throat.

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- Give the patient advice about self-management of sore throat and advise to return if she does not improve in the next five days
- Send an urgent venous blood sample for full bood count and commence phenoxymethylpenicillin 500 mg QDS for 10 days -
 This is the correct answer ✔
- ✓ Send an urgent venous blood sample for full blood count and give the patient advice about self-management of sore throat -
 Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Marrow failure in patients taking methotrexate can present with fever and sore throat. A full blood count to exclude this serious complication of methotrexate therapy is required. However, there are clear signs of tonsillitis making this the most likely diagnosis.

The patient meets the Centor criteria for antibiotic treatment of sore throat and as she is on immunosuppressant medication treatment with antibiotics would be reasonable.

The Centor criteria indicate that tonsillitis is more likely to be bacterial in origin if four of the following features are present:

- Anterior cervical adenopathy
- Tonsillar exudates
- Fever and
- Absence of cough.

Methotrexate must be stopped in the setting of infection and should only be restarted once all symptoms have resolved.

If the full blood count showed significant cytopenia hospital admission may be warranted, but otherwise the patient can be managed in the community.

Question

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Which of the following options represents the most appropriate management plan?

Your Answer

Next

Question

A 28-year-old woman with a 15 year history of Raynaud's phenomenon and no other symptoms had some blood tests with her GP.

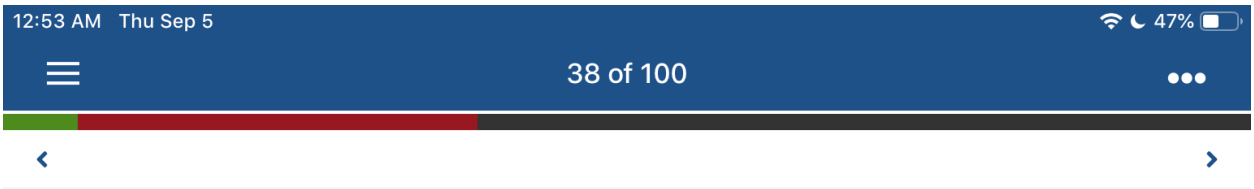
These show that she has a homogeneous pattern anti-nuclear antibody in a titre of 1:5120, and that she is negative for anti-dsDNA antibody using the *Crithidia luciliae* assay. A full blood count, urea electrolyte and creatinine, liver function tests, and C3 and C4 are normal.

What is the most likely diagnosis?

(Please select 1 option)

- Discoid lupus erythematosus
- Primary Raynaud's phenomenon
- Scleroderma
- Sjögren's syndrome
- Systemic lupus erythematosus (SLE)

Answer Question



Question

A 28-year-old woman with a 15 year history of Raynaud's phenomenon and no other symptoms had some blood tests with her GP.

These show that she has a homogeneous pattern anti-nuclear antibody in a titre of 1:5120, and that she is negative for anti-dsDNA antibody using the *Crithidia luciliae* assay. A full blood count, urea electrolyte and creatinine, liver function tests, and C3 and C4 are normal.

What is the most likely diagnosis?

Your Answer

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- Scleroderma
- Sjögren's syndrome
- ✓ Systemic lupus erythematosus (SLE) - Incorrect answer selected ✖

Rate this question



Next

Explanation

Diffuse staining ANA on immunofluorescence in high titre raises the possibility of systemic lupus erythematosus (SLE).

Further tests are required to ascertain if the diffuse staining ANA is due to anti-dsDNA (pathogenic in SLE) or due to anti ss-DNA antibody (not thought to play a pathogenic role in SLE).

Crithidia luciliae immunofluorescence is positive only in the presence of anti-dsDNA antibody. This is as *Crithidia luciliae* has a giant mitochondrion, with a circular dsDNA. It does not have ssDNA or any histones. In routine clinical practice, only anti-dsDNA are tested for. Diffuse staining ANA on immunofluorescence, in low titres (<1:160) is very common in the general population.

Although not mutually exclusive, different ANA immunofluorescence patterns suggest different diseases:

- Anti-centromere pattern: limited cutaneous systemic sclerosis
- Cytoplasmic pattern: Sjögren's syndrome, anti-synthetase syndrome
- Nucleolar pattern: diffuse cutaneous systemic sclerosis
- Speckled pattern: mixed connective tissue disease.

This patient has no symptoms to support the diagnoses of

- Discoid lupus erythematosus (scarring photosensitive skin ulceration)
- Sjögren's syndrome (dry eyes, dry mouth, fatigue)
- Scleroderma (Raynaud's phenomenon, skin thickening, tightness, telangiectasia), and
- SLE (photosensitive rash).

Anti-dsDNA antibodies are highly specific for diagnosis of SLE. However, they are neither necessary, nor sufficient in themselves for the diagnosis of SLE. At any one time only 50% patients with SLE have the anti-dsDNA antibody, while only 70% patients with SLE develop anti-dsDNA antibodies at any one time during the course of their illness.

Raynaud's phenomenon is a common clinical presentation, which may be primary or secondary to underlying disease. It can be diagnosed if there is a history of clearly demarcated pallor of the digit(s) followed by at least one other colour change (cyanosis and/or erythema). Symptoms are usually precipitated by cold (or less commonly emotion). Vasospasm without endothelial damage is thought to be the main cause for primary RP. The pathogenesis of secondary forms is probably initiated primarily by endothelial damage.

Physical examination, nailfold capillaroscopy and immunological tests can differentiate between primary and secondary Raynaud's.

Next

primary and secondary Raynaud's.

You should suspect secondary Raynaud's phenomenon if any of the following are present:

- Onset at more than 30 years of age
- Intense, painful or asymmetrical episodes
- Presence of additional clinical features suggestive of underlying disease
- Positive anti-nuclear antibody
- Abnormal nailfold capillaries
- Digital ulcers, gangrene or severe ischaemia of one or more digits.

Primary Raynaud's can be diagnosed if all the following are present:

- No suspicion of underlying disease
- Symmetrical episodes affecting both hands, but not necessarily all fingers
- No tissue necrosis, ulceration, gangrene or severe ischaemia
- Normal nailfold capillaries
- Normal ESR and negative anti-nuclear antibodies.

Treatment involves prevention so that permanent ischaemic damage can be avoided. Patients should avoid exposure to the cold.

The mild forms of primary RP can be controlled by non-pharmacological approaches alone. If insufficient, the first choice therapy is calcium channel blockers. In severe forms, intravenous prostaglandin, endothelin-1 receptor antagonists and phosphodiesterase-5 inhibitors are used.

Future treatment options may include selective alpha-2c adrenergic receptor blockers, tyrosine and Rho-kinase inhibitors and calcitonin gene-related peptide.

Differential diagnosis of Raynaud's phenomenon includes:

- Chilblains (perniosis): erythematous itchy swellings on fingers and toes in response to cold
- Acrocyanosis: continuous blueness of the extremities aggravated by cold
- Erythromelalgia: painful erythema caused by paroxysmal dilatation of blood vessels
- Vascular embolism
- Livedo reticularis: mottled, cyanotic discolouration of skin.

All the other features described here would be consistent with a diagnosis of primary Raynaud's disease.

Whilst miscarriage can be associated with connective tissue disease, in particular antiphospholipid syndrome, it is common in the population especially in early pregnancy.

Next

Question

Which of the following is most true regarding infliximab?

(Please select 1 option)

- Is a monoclonal antibody to the glycoprotein IIb-IIIa receptor
- Is first line treatment for ulcerative colitis
- Is licensed for the treatment of rheumatoid arthritis
- It prevents relapse of Crohn's disease in patients who are in remission
- Must not be used in combination with methotrexate due to increased toxicity

Answer Question

- Pexelizumab - Anti-C5 (complement) - anti-inflammatory: reduces myocardial infarction and death following coronary artery bypass graft (CABG) and angioplasty.

Reference:

NICE. Adalimumab, etanercept and infliximab for the treatment of rheumatoid arthritis (TA130).

Question

Which of the following is most true regarding infliximab?

Your Answer

- Is a monoclonal antibody to the glycoprotein IIb-IIIa receptor
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- Is licensed for the treatment of rheumatoid arthritis - This is the correct answer ✔
- It prevents relapse of Crohn's disease in patients who are in remission
- ✓ Must not be used in combination with methotrexate due to increased toxicity - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Infliximab is a monoclonal antibody to tumour necrosis factor (TNF) alpha. It is recommended by NICE for adults with rheumatoid arthritis who have both the following:

- active rheumatoid arthritis as measured by disease activity score greater than 5.1 on at least two occasions one month apart, and
- undergone trials of two disease-modifying anti-rheumatic drugs including methotrexate (unless contraindicated); defined as six months of therapy with two months at standard dose (unless toxicity has limited treatment).

Before starting therapy and throughout treatment, patients should be evaluated carefully for tuberculosis as there have been reports of the onset or reactivation of TB including miliary TB and some unusual extrapulmonary TB.

Infliximab should normally be used in combination with methotrexate and requires intravenous infusion in a hospital setting.

If a patient is intolerant of methotrexate, adalimumab (humanised anti-TNF antibody) and etanercept (anti-TNF receptor antibody) are alternatives to infliximab which can be given as monotherapy.

Response to treatment is assessed at six months, and only continued if there is an improvement in disease activity score of 1.2 points or more. Treatment is typically initiated with the least expensive drug, and the other agents only used if there is toxicity.

In addition, infliximab has a role to play in refractory Crohn's disease.

Some other monoclonal antibodies in clinical use include:

- Digibind - Digoxin-binding antibody for treatment of overdoses (increases clearance).
- Abciximab - Glycoprotein IIbIIIa receptor (for unstable angina).
- Pexelizumab - Anti-C5 (complement) - anti-inflammatory: reduces myocardial infarction and death following coronary artery bypass graft (CABG) and angioplasty.

Reference:

NICE. Adalimumab, etanercept and infliximab for the treatment of rheumatoid arthritis (TA130).

Question

Next

Question

A 40-year-old woman presents with a year history of Raynaud's phenomenon, dyspepsia and arthralgia.

On examination she has sclerodactyly and synovitis of the small joints of the hands. Her ESR is 40 mm/hr (<20), antinuclear antibody (ANA) is positive and rheumatoid factor is negative.

Which one of the following is most likely to develop as a further complication of this disorder?

(Please select 1 option)

- Anterior uveitis
- Butterfly rash
- Erosive joint disease
- Erythema nodosum
- Malabsorption

Answer Question

Question

A 40-year-old woman presents with a year history of Raynaud's phenomenon, dyspepsia and arthralgia.

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Which one of the following is most likely to develop as a further complication of this disorder?

Your Answer

- Anterior uveitis
- Butterfly rash
- Erosive joint disease
- Erythema nodosum
- ✓ Malabsorption - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Systemic sclerosis is a chronic autoimmune disease characterised by increased fibroblast activity and fibrosis in a number of different organ systems. 90-95% of patients have positive antinuclear antibodies. There are two major subtypes: limited cutaneous and diffuse cutaneous. CREST syndrome is an older term for the limited cutaneous form (calcinosis, Raynauds' phenomenon, oeosophageal dysmotility, sclerodactyly, telangiectasia). Patients with systemic sclerosis can present with skin abnormalities, musculoskeletal changes, gastrointestinal complications, pulmonary disease, renal crisis and dry eyes and mouth.

Involvement of the gastrointestinal tract can occur from mouth to anus with varying degrees of severity. It can be present in those with both the diffuse and limited cutaneous forms. Most GIT manifestations result from dysmotility secondary to infiltration of the intestinal wall with fibrous tissue, and can cause life-threatening malabsorption and malnutrition.

Gastric emptying is delayed in 10-75% of patients and causes symptoms of early satiety, bloating and emesis. Treatments include metoclopramide and erythromycin. The small bowel is also involved in 20-60% of patients, due to reduced or absent migrating motor complexes predisposing to bacterial overgrowth. The contributes to malabsorption, as does associated pancreatic insufficiency. In the colon there is often development of diverticuli involving all layers of the intestinal wall, or constipation due to reduced motility.

Anterior uveitis can be associated with ankylosing spondylitis, reactive arthritis, inflammatory bowel disease, sarcoidosis and Behcet's disease. None of these have clinical features which fit with the description above.

A malar, or butterfly rash, is classically associated with systemic lupus erythematosus. It involves the bridge of the nose, but spares the naso-labial folds. It is usually well demarcated and macular. It is not pathognomonic of SLE, and can be seen in pellagra and dermatomyositis, but again none of these would account for the symptoms described above.

Erosive arthritis is present in approximately 30% of cases of systemic sclerosis, which makes it less common than malabsorption .

Erythema nodosum has a variety of different causes, but is not commonly associated with systemic sclerosis.

Reference:

1. Ebert EC. Gastric and enteric involvement in progressive systemic sclerosis. *J Clin Gastroenterol* 2008;42:5-12.
2. Jaovisidha K, Csuka ME, Almagro UA, et al. Severe gastrointestinal involvement in systemic sclerosis: report of five cases and review of the literature. *Semin Arthritis Rheum.* 2005;34:689-702.
3. Kaye SA, Lim SG, Taylor M, et al. Small bowel bacterial overgrowth in systemic sclerosis:

Next

Question

A 77-year-old woman comes to the clinic for review. She has suffered a previous Colles' fracture, and has a history of a previous left leg DVT.

She takes a range of medication including omeprazole for severe reflux oesophagitis. A T score was measured at -4.2, and she was unable to tolerate weekly alendronate due to symptoms of indigestion.

Which of the following is the most appropriate alternative for her?

(Please select 1 option)

- Daily calcium and vitamin D
- Daily strontium ranelate
- Monthly ibandronate
- Monthly risedronate
- Six monthly denosumab

Answer Question

in the treatment of osteoporosis.

Strontium ranelate is incorrect because it is associated with increased risk of deep vein thrombosis.

Monthly ibandronate is incorrect because it is still associated with symptoms of oesophagitis.

Monthly risedronate is incorrect because it is still associated symptoms of oesophagitis.

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Which of the following is the most appropriate alternative for her?

Your Answer

- Daily calcium and vitamin D
- Daily strontium ranelate
- Monthly ibandronate
- Monthly risedronate
- ✓ Six monthly denosumab - Correct ✔

Rate this question

Next

Correct

Explanation

Six monthly denosumab is correct because it is effective in managing osteoporosis in this patient type. This patient falls into the severe osteoporosis range and definitely requires therapy in excess of calcium and vitamin D.

Whilst bisphosphonates can be given monthly, they still cause oesophagitis and are not appropriate here.

Denosumab is a rank ligand inhibitor leading to inhibition of osteoclast activity. It is given by six monthly subcutaneous injection and is associated with a 40% reduction in the risk of hip fracture over three years. It is recommended in NICE guidance on Osteoporotic fractures - denosumab (TA204) for this patient type.

Daily calcium and vitamin D are incorrect because they are less effective than bisphosphonates in the treatment of osteoporosis.

Strontium ranelate is incorrect because it is associated with increased risk of deep vein thrombosis.

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Your Answer

- Daily calcium and vitamin D

Next

Question

Which of the following is commonly associated with psoriasis?

(Please select 1 option)

- Angular stomatitis
- Koebner phenomenon
- Optic neuritis
- Response to chloroquine
- Scarring alopecia

Answer Question

Psoriasis is a chronic relapsing inflammatory skin disorder most commonly characterised by erythematous, sharply demarcated papules and rounded plaques covered by silvery scales. Diagnosis is usually clinical and skin biopsy is rarely required to confirm psoriasis.

New lesions often appear at sites of injury or trauma (Koebner phenomenon), which typically occurs one to two weeks after the skin has been damaged.

Psoriasis can be associated with an anterior uveitis, but optic neuritis is not a recognised complication.

Angular stomatitis describes erythema and fissuring of the skin adjacent to the angle of the mouth. The most common cause is *Candida* infection, but it is also associated with allergy, seborrhoeic dermatitis, vitamin B deficiencies, and iron deficiency. It is not commonly described in association with psoriasis.

The scalp is often involved in psoriasis, especially in children and adolescents. Most commonly, it causes a telogen effluvium, that is, the hair follicles are forced into the telogen resting stage.

It is rare for psoriasis to cause a scarring alopecia.

Up to 30% of patients with chronic plaque psoriasis may be affected by an arthropathy. This can range from mild distal interphalangeal joint involvement with nail pitting to severe arthritis mutilans.

Whilst the exact cause is unknown, psoriasis has a strong genetic basis. European populations are commonly affected, and there are two peaks of incidence at 16-22 years and 57-60 years. Males and females are equally affected.

External factors such as infection, stress, and medication may exacerbate psoriasis. Some of the common medications associated with triggering or worsening psoriasis include lithium, gold salts, beta blockers, and antimalarials (including chloroquine).

References:

Milavec-Puretić V, et al. Drug induced psoriasis. *Acta Dermatovenerol Croat.* 2011;19:39-42.

Question

Which of the following is commonly associated with psoriasis?

Your Answer

- Angular stomatitis
- Koebner phenomenon - This is the correct answer ✔

Next

Question

A 62-year-old man presents with a six month history of a painless lesion to his left subcostal region. The lesion was noticed by his wife and is asymptomatic.

He has no significant past medical history and takes no regular medication.

The lesion (pictured below) was non tender, dry, indurated and slightly coarse to palpation.

Baseline bloods demonstrate:

Hb	127 g/L	(130-180)
MCV	88 fL	(80-96)
WCC	6.5 $\times 10^9$/L	(4-11)
Westergren ESR	10/hr	(0-20)
CRP	5 mg/L	(<10)
IgM	5.2 g/dL	(0.05-3.2)
IgG	2.1 g/dL	(0.6-1.7)

ANA - positive, anti-histone - positive, anti-Cu/Zn superoxide dismutase - positive.



What is the diagnosis?

(Please select 1 option)

Answer Question

CRP	5 mg/L	(<10)
IgM	5.2 g/dL	(0.05-3.2)
IgG	2.1 g/dL	(0.6-1.7)

ANA - positive, anti-histone - positive, anti-Cu/Zn superoxide dismutase - positive.



What is the diagnosis?

(Please select 1 option)

- Diffuse systemic sclerosis
- Discoid lupus erythematosus
- Eosinophilic fasciitis
- Limited systemic sclerosis
- Morphea (localised scleroderma)

Answer Question



What is the diagnosis?

Your Answer

- Diffuse systemic sclerosis
- Discoid lupus erythematosus
- Eosinophilic fasciitis
- Limited systemic sclerosis
- ✓ Morphea (localised scleroderma) - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This gentleman has developed localised scleroderma, an idiopathic inflammatory skin condition which causes excessive collagen deposition and fibrosis. This patient exhibits the commonest form, "circumscribed/plaque" morphea. This is a well defined oval to round plaque that to fails to meet the criteria for generalised morphea. The pathogenesis is poorly defined. An autoimmune component is suggested by enhanced T helper 2 (Th2) dependent interleukin 4 (IL-4) activity, which in turn upregulates transforming growth factor beta (TGF -beta). TGF-beta stimulates fibroblast production of collagen and other extracellular matrix proteins.
Possible serum abnormalities include hypergammaglobulinaemia, peripheral eosinophilia and an elevated erythrocyte sedimentation rate (ESR) and C reactive protein (CRP). Anti-Cu/Zn superoxide dismutase antibodies have been found in up to 90% of some patient samples.

Diffuse systemic sclerosis is characterised by more widespread thickening of the skin. The localised form affects the hands, feet and face, whereas the diffuse form has more widespread skin changes and may also involve the viscera.
Discoid lupus erythematosus is a chronic photosensitive skin eruption. The location of this lesion makes that an unlikely diagnosis.
Eosinophilic fasciitis is a rare localised fibrosing disorder of the fascia, which usually presents with symmetrical swelling of the skin.

Reference:

1. Marzano AV, et al. Localized scleroderma in adults and children. Clinical and laboratory investigations on 239 cases. *Eur J Dermatol.* 2003;13:171-6.
2. Nagai M, Hasegawa M, Takehara K, et al. Novel autoantibody to Cu/Zn superoxide dismutase in patients with localized scleroderma. *J Invest Dermatol.* 2004;122:594-601.

Question

A 62-year-old man presents with a six month history of a painless lesion to his left subcostal region. The lesion was noticed by his wife and is asymptomatic.

He has no significant past medical history and takes no regular medication.

The lesion (pictured below) was non tender, dry, indurated and slightly coarse to palpation.

Baseline bloods demonstrate:

Next

Question

According to NICE guidelines, which of the following has a role in the treatment of osteoarthritis (OA)?

(Please select 1 option)

- Acupuncture
- Chondroitin sulphate
- Glucosamine hydrochloride
- Intra-articular hyaluronic acid
- Transcutaneous electrical nerve stimulation

Answer Question

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-26.
2. NICE. Osteoarthritis (CG177).

Question

According to NICE guidelines, which of the following has a role in the treatment of osteoarthritis (OA)?

Your Answer

- Acupuncture
- Chondroitin sulphate
- Glucosamine hydrochloride
- Intra-articular hyaluronic acid
- ✓ Transcutaneous electrical nerve stimulation - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

NICE guidelines recommend formulating individualised management plans for patients with osteoarthritis.

Behavioural change, such as exercise, weight loss and suitable footwear should be encouraged. Comorbidities which compound the effect of osteoarthritis symptoms should be identified and their treatment optimised.

Paracetamol and/or topical NSAIDs (for knee or hand OA) should be offered before considering oral NSAIDs.

If symptoms are not controlled with the above strategies, oral NSAIDs or COX-2 inhibitors (but not etoricoxib) can be used. A proton pump inhibitor should be co-prescribed. The lowest effective dose should be prescribed for the shortest period possible. If the patient is already taking low-dose aspirin, an alternative analgesic should be considered.

Treatments which are not recommended include rubefacients, intra-articular hyaluronan, electro-acupuncture and chondroitin or glucosamine products.

Adjuvants which can be used include opioid analgesics, topical capsaicin and intra-articular corticosteroids. Application of heat or cold packs, or TENS, can be considered if other strategies are ineffective.

Manipulation and stretching can be helpful, particularly for hip osteoarthritis. Bracing/joint supports can be used for patients with biomechanical joint pain or instability.

Patients should be referred for joint surgery if they have already been offered all of the core treatments or if they have refractory joint symptoms which have a substantial impact on their quality of life.

If there is a clear history of mechanical locking, referral for arthroscopic lavage and debridement should be considered.

Reference:

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-26.
2. NICE. Osteoarthritis (CG177).

Question

Next

Question

A 75-year-old lady presents with a six week history of shoulder and hip pain, restriction in movement, and early morning stiffness lasting for more than an hour. There is no history of weight loss and fever.

On examination, active shoulder movements are restricted globally due to pain while there is full range of shoulder movement passively. Muscle strength is normal.

Recent blood tests show:

Hb	111 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	86 mm/hr	(0 - 20 mm/1st hr)
CRP	43 mg/L	(<10)
Rheumatoid factor	Negative	

Urea, electrolytes and creatinine are normal.

What is the diagnosis?

(Please select 1 option)

- Frozen shoulder
- Polymyalgia rheumatica
- RA
- Rotator cuff tear
- Subacromial bursitis

Answer Question

WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
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Urea, electrolytes and creatinine are normal.
What is the diagnosis?

Your Answer

- Frozen shoulder
- Polymyalgia rheumatica - This is the correct answer ✔
- RA
- Rotator cuff tear
- ✓ Subacromial bursitis - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This patient has polymyalgia rheumatica (PMR).

PMR is an inflammatory condition that occurs in those older than 50 years, and is characterised by a fairly abrupt onset of pain, early morning stiffness, and restriction in movement.

Although not an absolute essential for diagnosis, symptoms tend to be symmetric and typically involve both shoulder and pelvic girdle musculature. There is no muscle weakness, and constitutional symptoms like fatigue and malaise may be present.

PMR does not involve distal appendicular joints, and has a dramatic response to low dose prednisolone (10-20 mg/day), with marked resolution of symptoms in two to three days.

Corticosteroid dose is tapered and may be stopped in one to two years time.

Ten per cent of patients with PMR have a normal erythrocyte sedimentation rate (ESR).

The differential diagnosis of PMR includes:

- Rheumatoid arthritis (RA)
- Rotator cuff syndrome
- Osteoarthritis (OA)
- Frozen shoulder
- Fibromyalgia
- Myositis
- Parkinson's disease, and
- Hypothyroidism.

In frozen shoulder there is restriction of active and passive movements in all directions.

Question

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Next

Question

A lady known to have systemic lupus erythematosus (SLE) delivers her baby at 37 weeks. At the initial newborn check, the baby appears to have a scaly red rash and to be bradycardic. An ECG shows complete heart block.

Which antibodies are most likely to be responsible for these findings?

(Please select 1 option)

- Anti-Jo1
- Anti-La
- Anti-Ro
- dsDNA
- pANCA

Answer Question

Incorrect

Explanation

Anti-Ro antibodies from a mother with SLE can cause fetal heart block as part of neonatal lupus. It affects only 3-5% of babies born to mothers with SLE, and the most common cause of heart block is anti-Ro antibodies.

Anti-La antibodies are also a cause of fetal heart block, but less commonly than anti-Ro.

dsDNA is used as a marker of disease activity in Lupus, but is not associated with neonatal heart block.

pANCA is common in a number of vasculitides but is not specific to neonatal lupus.

Anti-Jo1 antiboides are associated with dermatomyositis and polymyositis.

Question

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- Anti-Jo1
- Anti-La
- Anti-Ro - This is the correct answer ✔
- dsDNA
- ✓ pANCA - Incorrect answer selected ✖

Next

Question

A 42-year-old woman presents with a six month history of dyspepsia. She has a three year history of Raynaud's phenomenon.

On examination she has telangiectasia. Her investigations reveal an ESR of 40 mm/hr (0-10) and positive anticentromere antibodies.

Which of the following is a typical late complication of this disorder?

(Please select 1 option)

- Alopecia
- Butterfly skin rash
- Erosive polyarthropathy
- Myositis
- Pulmonary hypertension

Answer Question

Opin Rheumatol. 2011;23:536-44.

Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

The history here is suggestive of a diagnosis of systemic sclerosis.

Systemic sclerosis is a chronic autoimmune disease characterised by increased fibroblast activity and fibrosis in a number of different organ systems. 90-95% of patients have positive antinuclear antibodies. There are two major subtypes: limited cutaneous and diffuse cutaneous. CREST syndrome is an older term for the limited cutaneous form (calcinosis, Raynauds' phenomenon, oeosophageal dysmotility, sclerodactyly, telangiectasia).

Patients with systemic sclerosis can present with skin abnormalities, musculoskeletal changes, gastrointestinal complications, pulmonary disease, renal crisis and dry eyes and mouth. Dyspepsia, restricted distension of the gastric antrum and diffuse gastrointestinal dysmotility are frequent features. This is due both to fibrosis and muscle atrophy, and autonomic neuropathy.

Pulmonary hypertension can present in isolation in systemic sclerosis, or in association with interstitial lung disease or cardiac dysfunction. It is a frequent cause of morbidity and mortality. Despite advances in echocardiography and biomarkers, right heart catheterisation remains the diagnostic test to differentiate pulmonary veno-occlusive disease from hypertension. This is essential because pulmonary vasodilator therapy can increase mortality in veno-occlusive disease. Recent studies have investigated the use of non-invasive screening, but their use remains controversial.

Treatment options are limited, and prognosis is worse than with idiopathic pulmonary hypertension. Median survival is one year from diagnosis. Extrapulmonary disease in systemic sclerosis limit candidacy for lung transplantation. New therapies that target abnormal cellular proliferation in the pulmonary vasculature are currently under investigation.

Erosive polyarthropathy is typically present in the earlier stages of systemic sclerosis, and would not be classified as a late complication.

A malar, or butterfly, rash is classically associated with systemic lupus erythematosus. It involves the bridge of the nose, but spares the naso-labial folds. It is usually well demarcated and macular. It is not pathognomonic of SLE, and can be seen in pellagra and dermatomyositis, but again none of these would account for the symptoms described above.

Alopecia and myositis are not commonly associated with systemic sclerosis.

Reference:

1. Chatterjee S. Pulmonary hypertension in systemic sclerosis. *Semin Arthritis Rheum.* 2011;41:19-37.

Next

Correct

Explanation

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Next

Question

A 27-year-old man presents with fever, urethritis and arthralgia. He is found to have a swollen ankle with a pustular rash on the dorsal aspect of his foot.
What is the most likely diagnosis?

(Please select 1 option)

- Disseminated gonorrhoea
- Lyme disease
- Reactive arthritis
- Staphylococcal arthritis
- Tuberculous arthritis

Answer Question

Reference:

British Association for Sexual Health and HIV. National Guideline on the Diagnosis and Treatment of Gonorrhoea in Adults 2005.

Question

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What is the most likely diagnosis?

Your Answer

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- Lyme disease
- Reactive arthritis
- Staphylococcal arthritis
- ✓ Tuberculous arthritis - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The most likely cause for this acute presentation is disseminated gonorrhoea - with a pustular rash on the dorsum of his foot, fever, urethritis and oligoarthritis.

Gonorrhoea is the second most common bacterial STI in the UK after chlamydia. It is caused by *Neisseria gonorrhoeae*, a Gram negative diplococcus. Transmission occurs by inoculation of infected secretions, with a typical incubation period of two to five days.

Primary infection is symptomatic in 90-95% of men, but only 50% of women. It typically presents with urethral or vaginal discharge, dysuria and abdominal pain. Anal and pharyngeal disease is usually asymptomatic. Spread can occur to involve the epididymis, prostate, endometrium and pelvic organs although this is rare (<10%).

Even less common is haematological dissemination, which results in skin lesions, arthralgia, arthritis and meningitis. There is an increased risk of acquiring HIV infection if you are infected with gonococcus.

Culture is the traditional first line diagnosis test, but rapid diagnosis can be undertaken using light microscopy of genital specimens to detect the bacteria.

Increasingly, nucleic acid amplification tests are used but if positive it should be followed by culture to confirm diagnosis and check antibiotic sensitivities. Treatment is with antibiotics depending on local sensitivities.

Lyme disease is caused by a tick-borne spirochaete, *Borrelia burgdorferi*. It is a multisystem inflammatory disease initially characterised by a spreading erythema migrans rash and can disseminate to the musculoskeletal, neurological or cardiovascular system. Stages of the disease have varying manifestations, but none would fit the description above.

Reactive arthritis, formally known as Reiter's syndrome, is an autoimmune condition that develops in response to an infection. Classically this is described as a triad of urethritis, conjunctivitis and arthritis. Precipitating infections include gastrointestinal organisms such as *Salmonella* and genitourinary infections, especially *Chlamydia*. Skin rash as described above is not typically present.

Staphylococcus and tuberculosis are both causes of septic arthritis. Patients are often systemically unwell and urethritis would not be expected.

Reference:

British Association for Sexual Health and HIV. National Guideline on the Diagnosis and Treatment of Gonorrhoea in Adults 2005.

Next

Question

A 25-year-old man complaining of low back pain and stiffness gradually increasing in severity for six months presents to the outpatient department.

He has no past medical history and the only medications he takes are anti-inflammatories that ease the pain.

On examination, his back movements are stiff with decreased range of movement due to pain, but the spine curvature is normal.

Which one of the options below is the most likely diagnosis?

(Please select 1 option)

- Ankylosing spondylitis (AS)
- Metastatic disease of the spine
- Muscular strain
- Reactive arthritis
- Scheuermann's disease

Answer Question

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- Reactive arthritis
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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

All of these can be causes of back pain. The key differentiators in this case are the age of the patient and the detailed history of the type of back pain.

Patients often present with ankylosing spondylitis (AS) in their 20s and 30s with a history of chronic back pain and stiffness. Key features of the pain include:

- Early morning stiffness of more than 30 minutes
- Alternating buttock pain
- Waking in the second half of the night
- Pain easing with non-steroidal anti-inflammatory drugs (NSAIDs)
- Pain which is worse with rest and eases with exercise

In the advanced stages of AS, patients develop loss of lumbar lordosis, buttock atrophy and an exaggerated thoracic kyphosis. This results in a posture commonly referred to as 'question mark'.

Metastatic cancer can affect the spine and cause back pain. This is usually associated with 'red flag' signs suggesting malignancy. This diagnosis is less common in younger patients.

Muscular strain is the commonest cause of back pain in general practice but chronic pain for more than three months may indicate AS and should be investigated.

Reactive arthritis can cause inflammatory back pain with similar symptoms to AS but there is no history of preceding genitourinary or gastrointestinal infection.

Scheuermann's disease generally presents in teenagers with thoracic back pain and increased thoracic kyphosis, and therefore does not fit with this scenario.

Question

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Next

Question

A 36-year-old woman presents with a one year history of her hands being particularly sensitive to the cold, intermittently becoming exquisitely painful and turning blue.

Her only current medication is Gaviscon which she buys over the counter for recurrent heart burn.

Clinical examination of her hands demonstrates nail fold infarcts and telangiectasia on fingers which appear to taper distally. Dilated nailfold capillary loops without capillary drop out were apparent on nailfold capillaroscopy.

Which of the following is most commonly associated with this condition?

(Please select 1 option)

- Anti-Mi-2
- Anti-Ro
- Anti-smooth muscle
- Anti-topoisomerase I (Scl-70)
- HLA DR1 (DQ5)

Answer Question

Question

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- ✓ HLA DR1 (DQ5) - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Systemic sclerosis is a chronic autoimmune disease characterised by increased fibroblast activity and fibrosis in a number of different organ systems. Ninety to 95% of patients have positive antinuclear antibodies.

There are two major subtypes: limited cutaneous and diffuse cutaneous.

CREST syndrome is an older term for the limited cutaneous form (calcinosis, Raynauds' phenomenon, oeosophageal dysmotility, sclerodactyly, telangiectasia).

Patients with systemic sclerosis can present with:

- Skin abnormalities
- Musculoskeletal changes
- Gastrointestinal complications
- Pulmonary disease
- Renal crisis, and
- Dry eyes and mouth.

A number of autoantibodies against extractable nuclear antigens can be detected in patients with systemic sclerosis. Anticentromere antibodies and antitopoisomerase I antibodies are the classic autoantibodies associated with the disease.

Anticentromere antibodies are linked with limited cutaneous involvement and isolated pulmonary hypertension, and a good prognosis, whereas antitopoisomerase I and linked with diffuse skin disease and pulmonary fibrosis and a higher mortality. Additional autoantibodies which can be detected are anti-RNA polymerase, anti-U3RNP, anti-Ku and anti-U1RNP.

Antibodies to Ro are also detected in systemic sclerosis. Patients in whom they are found tend to have earlier pulmonary involvement as compared to those patients who do not have anti-Ro antibodies. However, these antibodies are non-specific and are also present in patients with systemic lupus erythematous (where they are associated with neonatal lupus) and myositis.

Anti-Mi-2 antibodies are associated with inflammatory myopathies. Anti-smooth muscle antibodies are linked with autoimmune hepatitis.

HLA-B8, DR5, DR3, DR52 and DQB2 have been linked with systemic sclerosis.

HLA DRB1*01 and DQB1*0501 haplotypes are more common in anticentromere antibody positive patients, while HLA DRB1*11 and DQB1*0301 have been associated with antitopoisomerase I antibodies.

Reference:

Next

Question

A 42-year-old woman presents with a small joint polyarthritis and significant morning stiffness which has increased over the past few months.

On examination she has a symmetrical small joint polyarthritis affecting the proximal interphalangeal joints, metatarsophalangeal joints, wrists, elbows and knees; otherwise the physical examination is unremarkable.

Haemoglobin	120 g/L	(115-160)
White cell count	7.1 $\times 10^9$/L	(4-10)
Platelets	201 $\times 10^9$/L	(150-400)
Sodium	141 mmol/L	(134-143)
Potassium	4.3 mmol/L	(3.5-5)
Creatinine	82 µmol/L	(60-120)
Rheumatoid factor	Negative	
Anti-CCP antibody	Positive	

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Polymyalgia rheumatica
- Reactive arthritis
- Rheumatoid arthritis
- Seronegative arthritis
- SLE

Answer Question

White cell count	7.1 $\times 10^9$/L	(4-10)
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Which of the following is the most likely diagnosis?

Your Answer

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- Reactive arthritis
- Rheumatoid arthritis - This is the correct answer ✔
- Seronegative arthritis
- ✓ SLE - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Anticyclic citrullinated protein (CCP) antibodies were identified as early as the 1970s in patients with rheumatoid arthritis, but it is only recently that more specific assays have become available.

They are the most specific biomarker associated with the diagnosis of rheumatoid arthritis. It has been suggested that citrullination and the anticitrullinated peptide antibodies play a critical role in initiating the inflammatory response within rheumatoid arthritis.

In patients with the clinical picture of rheumatoid arthritis who are rheumatoid factor negative, anti-CCP antibodies can aid in making the diagnosis between rheumatoid and other causes of arthritis.

Positive rheumatoid factor is associated with a worse prognosis in rheumatoid arthritis.

Polymyalgia rheumatica is associated with a markedly raised erythrocyte sedimentation rate (ESR) and is characterised by severe bilateral pain and morning stiffness of the shoulder, neck and pelvic girdle.

Reactive arthritis is the triad of arthritis, urethritis and conjunctivitis which is classically associated with sexually transmitted or gastrointestinal infection.

Seronegative arthritis is a heterogenous group of inflammatory rheumatic disease with predominant involvement of axial and peripheral joints, and enthesis.

There is a high incidence of HLA-B27, but rheumatoid factor is typically negative. Diseases belonging to this group include ankylosing spondylitis, reactive arthritis, psoriatic arthritis and Behçet's disease.

Systemic lupus erythematosus (SLE) is a heterogenous, multisystem, inflammatory autoimmune condition which is characterised by positive antinuclear antibodies.

Reference:

1. Luban S, Li ZG. Citrullinated peptide and its relevance to rheumatoid arthritis: an update. *Int J Rheum Dis.* 2010;13:284-7.
2. Wiik AS, et al. All you wanted to know about anti-CCP but were afraid to ask. *Autoimmun Rev.* 2010;10:90-3.

Question

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Next

Question

A 62-year-old man has back pain.
An FBC reveals the following:

WBC	3.7 $\times 10^9$/L	(4-11)
Haemoglobin	103 g/L	(140-180)
MCV	85 fL	(80-100)
Platelets	110 $\times 10^9$/L	(150-400)

His total serum protein is 85 g/L with an albumin of 41 g/L. A chest x ray shows no abnormalities of heart or lung fields, but there are several lucencies in the vertebral bodies. You perform a sternal bone marrow aspirate and get a dark red jelly-like material in the syringe.
The smear of the aspirate is most likely to show which of the following cell types as a prominent feature?

(Please select 1 option)

- Fibroblasts
- Giant cells
- Metastatic renal cell carcinoma cells
- Osteoblasts
- Plasma cells

Answer Question

Haemoglobin	103 g/L	(140-180)
MCV	85 fL	(80-100)
Platelets	110 $\times 10^9$/L	(150-400)

His total serum protein is 85 g/L with an albumin of 41 g/L. A chest x ray shows no abnormalities of heart or lung fields, but there are several lucencies in the vertebral bodies. You perform a sternal bone marrow aspirate and get a dark red jelly-like material in the syringe.

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Your Answer

- Fibroblasts
- Giant cells
- Metastatic renal cell carcinoma cells
- Osteoblasts
- ✓ Plasma cells - Correct ✔

Rate this question

Next

Correct

Explanation

The patient has multiple myeloma. The bone marrow needle was in a lytic lesion filled with plasma cells. His serum globulin is high from a monoclonal gammopathy.

Osteoblasts are most numerous in repair of bone, and callus is very firm.

Fibroblasts produce collagen and are more numerous with the gross appearance of firm, white scar tissue.

Giant cells may be seen in a variety of benign and malignant lesions of bone, but this does not explain the hypergammaglobulinaemia.

Osteolytic metastases of renal cell carcinoma could have the gross appearance described here, but would not account for hypergammaglobulinaemia.

Question

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The smear of the aspirate is most likely to show which of the following cell types as a prominent feature?

Your Answer

Next

A 42-year-old lady presents with fatigue and tiredness.

Recently, she has noted that her eyes feel dry and gritty, and she requires water to swallow her food. On examination, there is salivary gland enlargement in her neck.

Recent blood tests are:

Hb	121 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	36 mm/hr	(0-20)
Anti-nuclear antibody	positive (1:80)	(Negative at 1:20 Dil)
Anti-centromere antibody	negative	(Negative at 1:40 Dil)
Anti-Scl70 antibody	negative	(Negative)
Anti-U1RNP	negative	(Negative)
Anti-Ro/La antibody	positive	(Negative)
Urea, electrolytes and creatinine	normal	

What is the diagnosis?

(Please select 1 option)

- Discoid lupus erythematosus
- Mixed connective tissue disease
- Sjögren's syndrome
- Systemic lupus erythematosus
- Systemic sclerosis

Answer Question

ESR	36 mm/hr	(0-20)
Anti-nuclear antibody	positive (1:80)	(Negative at 1:20 Dil)
Anti-centromere antibody	negative	(Negative at 1:40 Dil)
Anti-Scl70 antibody	negative	(Negative)
Anti-U1RNP	negative	(Negative)
Anti-Ro/La antibody	positive	(Negative)
Urea, electrolytes and creatinine	normal	

What is the diagnosis?

Your Answer

- Discoid lupus erythematosus
- Mixed connective tissue disease
- Sjögren's syndrome - This is the correct answer ✔
- Systemic lupus erythematosus
- ✓ Systemic sclerosis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This patient has Sjögren's syndrome.
Other causes of dry eyes, and/or dry mouth include:

- past head and neck radiation
- hepatitis C infection
- acquired immunodeficiency disease
- pre-existing lymphoma
- sarcoidosis
- graft versus host disease, or
- the use of an anticholinergic drugs.

Patients are at a higher risk of developing lymphoma (non-Hodgkin's lymphoma [NHL] B cell), and should be monitored for this.

Question

A 42-year-old lady presents with fatigue and tiredness.
Recently, she has noted that her eyes feel dry and gritty, and she requires water to swallow her food. On examination, there is salivary gland enlargement in her neck.
Recent blood tests are:

Hb	121 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	36 mm/hr	(0-20)
Anti-nuclear antibody	positive (1:80)	(Negative at 1:20 Dil)

Next

Question

A 65-year-old man who has recently fractured his left femur presents with thirst, headache and lower back pain.

Blood tests reveal a haemoglobin of 82 g/L and corrected calcium of 2.89 mmol/L. Radiographs revealed lytic lesions in the vertebrae and skull.

Which of the following is least likely to be present in this patient?

(Please select 1 option)

- Bence Jones protein
- Decreased resistance to infection
- Infiltration of flat bones by plasma cells
- Macroglobulinaemia
- Monoclonal gammopathy

Answer Question

IgM. This is an important differential diagnosis when multiple myeloma is suspected. Macroglobulins are not typically a feature of multiple myeloma.

Question

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Which of the following is least likely to be present in this patient?

Your Answer

- Bence Jones protein
- Decreased resistance to infection
- Infiltration of flat bones by plasma cells
- Macroglobulinaemia - This is the correct answer ✔
- ✓ Monoclonal gammopathy - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

This gentleman presents with the classic symptoms of multiple myeloma: bone pain, pathological fracture, anaemia and hypercalcaemia (leading to thirst).

Multiple myeloma is a relatively common malignany that is part of a spectrum of disorders ranging from monoclonal gammopathy of unknown significance (MGUS) to plasma cell leukaemias. It is characterised by a proliferation of malignant plasma cells involving more than 10% of the bone marrow, and a subsequence excess of monoclonal paraprotein. Additional presenting features include hyperviscosity (confusion, hazy vision), peripheral neuropathies, bleeding and spinal cord compression.

The four incorrect answers here are typical features of multiple myeloma.

Bones commonly affected are the flat bones of the spine, and as such lower back pain is one of the most common presenting features.

The aberrant antibodies that are produced lead to impaired humoral immunity, often compounded by leucopenia secondary to bone marrow infiltration. Patients therefore have a high prevalence of infection, especially with encapsulated organisms such as *Pneumococcus*.

Lambda light chains are secreted in the urine as Bence Jones protein. This is most accurately detected by urine protein electrophoresis. Immunofixation allows confirmation of the monoclonal nature of the light chains.

Gammopathy is a disturbance in the synthesis of immunoglobulins. Monoclonal gammopathy suggests there is a single neoplastic clone causing an excess of immunoglobulin, as is the case in multiple myeloma.

An important differential diagnosis to be aware of is monoclonal gammopathy of unknown significance (MGUS).

Macroglobulins are plasma globulins of high molecular weight. They are a central feature of Waldenstrom's macroglobulinaemia, where proliferation of lymphocytes cause an excess of IgM. This is an important differential diagnosis when multiple myeloma is suspected. Macroglobulins are not typically a feature of multiple myeloma.

Question

A 65-year-old man who has recently fractured his left femur presents with thirst, headache and lower back pain.

Next

Question

A 70-year-old retired sea captain develops weakness of the shoulders and hips over a four month period. He has also noticed weak finger flexors with normal strength in straightening them. He has had some difficulty swallowing liquids.

There is no past medical history, apart from a sexually transmitted disease picked up in the South Pacific some forty years before. This was treated with antibiotics and he is not sure of the diagnosis.

He smokes a pipe and drinks one or two tots of rum at the weekend.

A creatine kinase level comes back at 120.

Which investigation is most likely to give a definite diagnosis?

(Please select 1 option)

- Anti Jo 1 antibody titres
- CT scan of the chest
- EMG
- Muscle biopsy with electron microscopy
- 24 hour urine collection for myoglobin

Answer Question

The diagnosis is inclusion body myositis (IBM). This is an inflammatory condition that affects the over 50s.

Proximal muscles and finger flexors are predominantly involved, but distal muscle groups may also be involved. The onset of muscle weakness in IBM is generally gradual (over months or years).

IBM occurs more frequently in men than women. Creatine kinase (CK) may be normal.

Jo 1 titres are often raised in dermatomyositis associated with lung disease.

Electromyogram (EMG) shows a similar pattern in polymyositis and IBM - small short duration motor unit arrythmias can complicate polymyositis and dermatomyositis, but not IBM.

There is no association of IBM with malignancy.

Polymyositis and dermatomyositis show a much better response to steroids than IBM.

Biopsy in IBM shows intranuclear or cytoplasmic tubofilaments on electron microscopy.

Question

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Which investigation is most likely to give a definite diagnosis?

Your Answer

- Anti Jo 1 antibody titres
- CT scan of the chest
- EMG
- Muscle biopsy with electron microscopy - This is the correct answer ✔

Next

Question

A 52-year-old woman presents with left loin pain. Past history includes hypertension and progressive cognitive decline.

On examination she is pyrexial, has livedo reticularis and a blood pressure of 180/100 mmHg. Examination of the abdomen reveals no masses but there is tenderness in the left flank.

Investigations revealed:

Haemoglobin	129 g/L	(115-165)
White cell count	8.7 $\times 10^9$/L	(4-11)
Platelet count	83 $\times 10^9$/L	(150-400)
Serum creatinine	106 mol/L	(60-110)
Urine dipstick	Blood +++	
	Protein +	

Which one of the following tests is most likely to be positive?

(Please select 1 option)

- Anticardiolipin antibody
- Antiglomerular basement membrane antibody
- Antimitochondrial antibody
- Antineutrophil cytoplasmic antibody
- Antistreptolysin O antibody

Answer Question

Haemoglobin	129 g/L	(115-165)
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- Antiglomerular basement membrane antibody
- Antimitochondrial antibody
- Antineutrophil cytoplasmic antibody
- ✓ Antistreptolysin O antibody - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The presence of thrombocytopenia, hypertension and livedo reticularis, make systemic lupus erythematosus (SLE) the most likely diagnosis in this case.

This presentation is likely due to renal vein thrombosis (causing flank pain with haematuria and proteinuria), highlighting the possibility of antiphospholipid syndrome (APS). Antibodies commonly associated with APS are anticardiolipin antibodies.

Antiphospholipid syndrome is a common cause of acquired thrombophilia and characterised by arterial and/or venous thrombosis and pregnancy mortality in association with circulating antiphospholipid antibodies.

These are a heterogenous group of approximately twenty autoantibodies directed against phospholipid binding plasma proteins.

Three of the most clinically important are:

1. The lupus anticoagulant
2. Anti-beta-2 glycoproetin I antibodies, and
3. The anticardiolipin antibodies.

They can be detected either by phospholipid-dependent coagulation test for lupus anticoagulant or ELISA test for anticoagulation and anti-β2GPI antibodies. Antibodies should be demonstrated on at least two occasions separated by 12 weeks.

Antiphospholipid syndrome may be primary, or associated with other conditions (such as systemic lupus erythematosus).

Antiglomerular basement membrane antibodies are characteristic of Goodpasture's syndrome, which presents with acute kidney injury with or without alveolar haemorrhage.

Antimitochondrial antibodies are seen in primary biliary cirrhosis, which causes fatigue, pruritus and abdominal pain, with jaundice as a late sign.

Antineutrophil cytoplasmic antibodies (ANCA) are a heterogenous group of antibodies which are seen in a variety of vasculitides.

Antistreptolysin-O antibodies are directed against group A *Streptococci*, which can be associated with a variety of clinical presentations including scarlet fever.

Reference:

1. Sangle NA, Smock KJ. Antiphospholipid antibody syndrome. *Arch Pathol Lab Med.*

Next

Question

A 70-year-old man from Lancashire has noted increasing back and leg pain for several years. He also says his hat does not fit him any more. He has difficulty hearing on the left and has orthopnoea and pedal oedema.

An x ray reveals bony sclerosis of the sacroiliac, lower vertebral, and upper tibial regions with cortical thickening, but without mass effect or significant bony destruction.

Blood tests reveal an elevated serum alkaline phosphatase.

What is the most likely pathologic process that explains these findings?

(Please select 1 option)

- Metastatic adenocarcinoma
- Mineral density
- Paget's disease of bone
- Renal failure with renal osteodystrophy
- Vitamin D deficiency

Answer Question

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- ✓ Vitamin D deficiency - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This man has Paget's disease, with bone pain, cardiac failure and sensorineural deafness.

Paget's disease of bone is a localised disorder of bone remodelling. There are increased numbers of giant osteoclasts, which increase bone resorption with subsequent increase in new bone formation and altered bone architecture.

The structure of the new bone is disorganised and mechanically weaker, and therefore liable to pathological fracture and deformity. It can affect any bone, but is commonest in the axial skeleton, long bones and skull. The hands and feet are rarely affected. Both genetic and environmental factors are implicated, and it has been suggested paramyxovirus is involved.

The majority of patients affected are over the age of 55, and men are more commonly affected. The UK has the highest prevalence of Paget's disease in the world.

The signs and symptoms of Paget's are varied, depending on the location of involved sites and the degree of increased bone turnover. It is commonly asymptomatic and is discovered by an elevated serum alklaline phosphatase or typical radiographic findings.

When symptoms do occur, the most common are bone pain and/or deformity. Deafness or tinnitus are not uncommon, due to compression of cranial nerve VIII. The most concerning complication is the development of osteosarcoma, which carries a poor prognosis.

Management concentrates on control of pain and the reduction of complications. In addition to analgesia, bisphosphonates are the mainstay of treatment. These reduce bone turnover, improve pain, promote healing of osteolytic lesions and restore normal bone histology. Serial monitoring of alkaline phosphatase can help to monitor treatment.

Decreased bone mineral density is seen in osteoporosis, which is not associated with a rise in alkaline phosphatase.

Bone metastases may be osteolytic, sclerotic or mixed on radiograph, but typically spread to destroy the medullary bone.

Renal osteodystrophy combines features of osteitis fibrosa cystica and osteomalacia, and is typically more focal than described in this scenario.

Vitamin D deficiency leads to osteomalacia, which does not present with the clinical features decribed above.

References:

Siris ES. Paget's disease of bone. *J Bone Miner Res.* 1998;13:1061-5.

Question

Next

Question

A 55-year-old gentleman has been taking methotrexate 7.5 mg weekly for seronegative erosive rheumatoid arthritis with considerable clinical and symptomatic improvement. He has been on this dose for three months.

His most recent investigations, performed two days ago, reveal the following:

Haemoglobin	129 g/L	(120-165)
White cell count	5.3 $\times 10^9$/L	(4-11)
Platelets	183 $\times 10^9$/L	(150-400)
Urea	4.2 mmol/L	(2.5-7.5)
Creatinine	88 µmol/L	(60-110)
Alkaline phosphatase	92 U/L	(60-110)
AST	22 U/L	(1-31)
ALT	15 U/L	(5-35)

When should the next FBC be performed?

(Please select 1 option)

- One week
- Two weeks
- One month
- Six months
- One year

Answer Question

White cell count	5.3 $\times 10^9$/L	(4-11)
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When should the next FBC be performed?

Your Answer

- One week
- Two weeks
- One month - This is the correct answer ✔
- Six months
- ✓ One year - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

His results are normal and he is receiving a stable dose of methotrexate.

The most appropriate time interval for monitoring his full blood count (FBC) according to current UK guidance would therefore be in one month.

Clinicians are recommended to check FBC fortnightly until 6 weeks after the last dose increase. Provided it is stable, it can be checked monthly thereafter until the dose and disease is stable for one year.

Thereafter, monitoring is guided by clinical judgement. If white cell count is less than 3.5, neutrophils less than 2 or platelets less than 150, methotrexate should be withheld pending discussion with the specialist team. An MCV greater than 105 fL warrants checking B12, folate and TSH and treating any abnormality. If these are normal, discuss with the specialist team.

Liver function tests should be checked three monthly. If there is an unexplained decrease in albumin, or AST/ALT twice the upper limit of normal, the specialist team should be informed.

Urea, creatinine and electrolytes should be checked six monthly. If the estimated glomerular filtration rate falls below 50 mL/minute, methotrexate should be withheld until the result has been discussed with the specialist team.

In addition to this monitoring, any clinical signs of toxicity should be monitored for. If the patient develops rash, oral ulceration, nausea, vomiting or diarrhoea, methotrexate should be withheld until discussed with the specialist team. Any new or increasing dyspnoea or dry cough should be urgently discussed with secondary care, and methotrexate withheld. A sore throat or abnormal bruising should be investigated with an FBC, and methotrexate withheld until the results available.

Reference:

NICE Clinical Knowledge Summaries. Methotrexate monitoring requirements.

Question

A 55-year-old gentleman has been taking methotrexate 7.5 mg weekly for seronegative erosive rheumatoid arthritis with considerable clinical and symptomatic improvement. He has been on this dose for three months.

His most recent investigations, performed two days ago, reveal the following:

Next

Question

A 23-year-old female presents with left knee pain and a two month history of weight loss.
She has a good appetite but has had occasional episodes of diarrhoea over this time and tends to pass a loose motion at least twice daily. She is not taking any medication and there is a family history of hypothyroidism. She is a non-smoker and drinks modest quantities of alcohol.
Examination reveals a swollen, tender left knee joint with a small effusion.
Which is the most likely diagnosis?

(Please select 1 option)

- Behçet's disease
- Inflammatory bowel disease
- Reactive arthritis
- Thyrotoxicosis
- Tuberculosis

Answer Question



Question

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- Behçet's disease
- Inflammatory bowel disease - This is the correct answer ✔
- Reactive arthritis
- Thyrotoxicosis
- ✓ Tuberculosis - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

The description of weight loss, diarrhoea and a mono/oligo-arthropathy suggests a diagnosis of inflammatory bowel disease. (IBD).

IBD-associated arthropathy is considered a subtype of seronegative spondyloarthropathy. A variety of joint involvement has been described, from large joint pauciarticular arthropathy to a rheumatoid pattern polyarthropathy.

Peripheral arthritis is generally non-erosive and the oligoarticular variant particularly may correlate with intestinal disease activity.

Axial arthritis may include inflammatory back pain, sacroilitis, or ankylosing spondylitis and is less likely to correlate with gastrointestinal symptoms. Whilst there have been genetic factors identified, the mechanisms surrounding the development of arthritis in IBD remain unclear. Treatment of the gastrointestinal disease is not always sufficient for control of arthritis, and biologic agents may be indicated.

Behçet's disease is a chronic inflammatory multisystem disorder characterised by recurrent oral and genital aphthosis and ocular involvement. Whilst arthropathy is fairly common, disturbance in bowel habit would not be expected. It is mainly present along the ancient Silk Road, from the Mediterranean to East Asia.

Reactive arthritis, formally known as Reiter's syndrome, is an autoimmune condition that develops in response to an infection. Classically this is described as a triad of urethritis, conjunctivitis and arthritis. Precipitating infections include gastrointestinal organisms such as *Salmonella* and genitourinary infections, especially *Chlamydia*.

Diarrhoea, if present, is typically more acute than is described in this scenario.

Whilst thyrotoxicosis can cause diarrhoea and arthralgia, a monoarthritis is unusual.

Tuberculous arthritis is now very rare in Europe, but can present in the spine, hip or knee. Infection is either from haematogenous spread (from lungs or intestine) or local spread (from a tuberculous focus in a neighbouring bone).

Reference:

1. Arvikar SL, Fisher MC. Inflammatory bowel disease associated arthropathy. *Curr Rev Musculoskelet Med.* 2011;4:123-31.
2. Orchard T et al. Peripheral arthropathies in inflammatory bowel disease: their articular distribution and natural history. *Gut* 1998;42:387-391.

Next

Question

A 55-year-old lady returns for her three month follow up in your inflammatory arthropathy clinic.

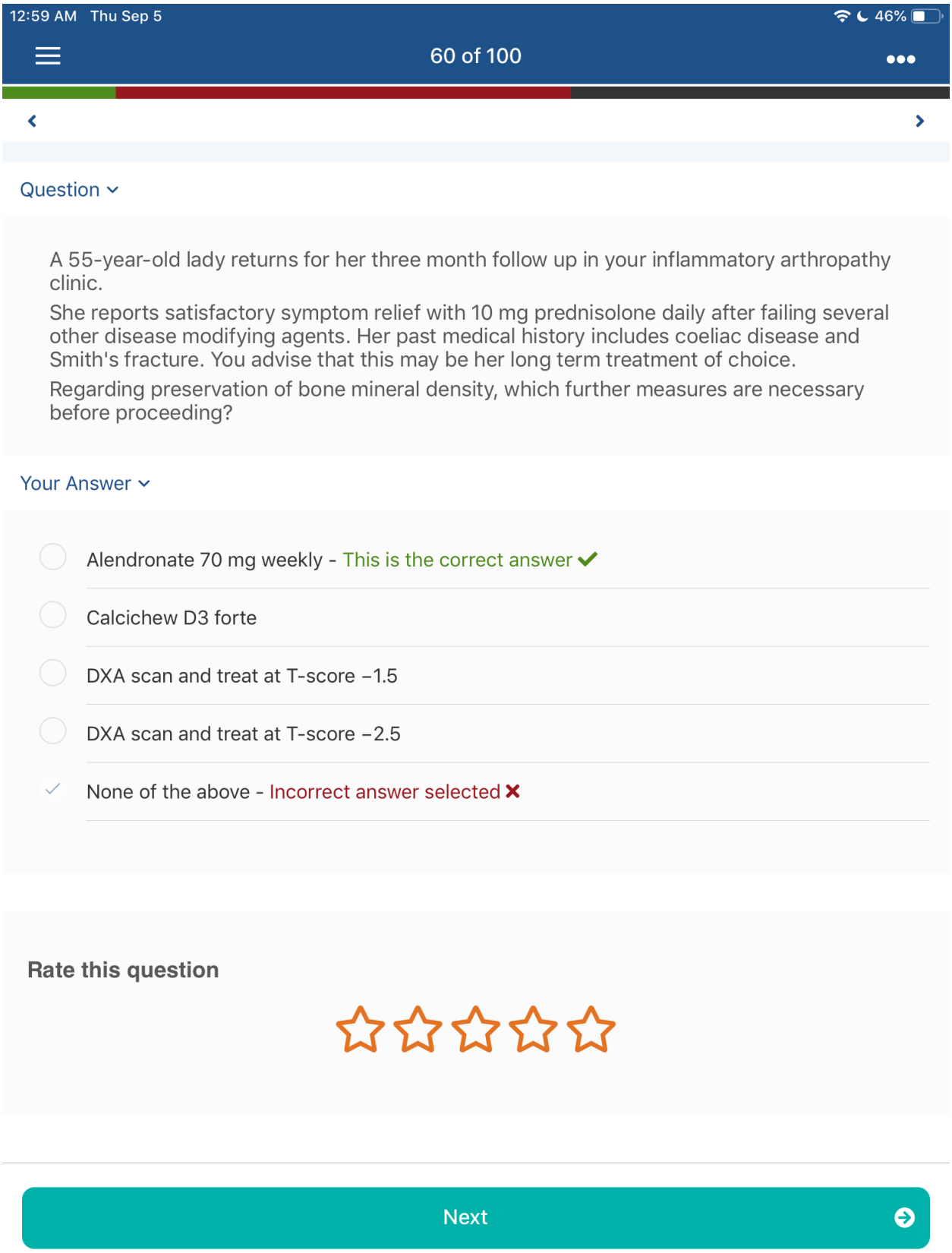
She reports satisfactory symptom relief with 10 mg prednisolone daily after failing several other disease modifying agents. Her past medical history includes coeliac disease and Smith's fracture. You advise that this may be her long term treatment of choice.

Regarding preservation of bone mineral density, which further measures are necessary before proceeding?

(Please select 1 option)

- Alendronate 70 mg weekly
- Calcichew D3 forte
- DXA scan and treat at T-score −1.5
- DXA scan and treat at T-score −2.5
- None of the above

Answer Question


12:59 AM Thu Sep 5
46%
60 of 100
Question
A 55-year-old lady returns for her three month follow up in your inflammatory arthropathy clinic.
She reports satisfactory symptom relief with 10 mg prednisolone daily after failing several other disease modifying agents. Her past medical history includes coeliac disease and Smith's fracture. You advise that this may be her long term treatment of choice.
Regarding preservation of bone mineral density, which further measures are necessary before proceeding?
Your Answer
Alendronate 70 mg weekly - This is the correct answer
Calcichew D3 forte
DXA scan and treat at T-score −1.5
DXA scan and treat at T-score −2.5
None of the above - Incorrect answer selected
Rate this question
Next

Incorrect

Explanation

The following learning points are covered by this question:

- Bone mineral density measurement
- Indications for bisphosphonate prophylaxis with glucocorticoid therapy
- Specific bisphosphonate pharmacotherapy.

This lady has three independent risk factors for the development of osteoporosis (coeliac disease, previous fragility fracture, long term glucocorticoid therapy).

In the context (long term glucocorticoid therapy), due to her previous fragility fracture and irrespective of her age, this patient should be commenced on bisphosphonate therapy without the need for bone mineral density quantification with DEXA scanning.

Indications for bisphosphonate prophylaxis in glucocorticoid use for a period > 3 months:

<65 years	>65 year
Fragility fracture*	All patients
T-score below –1.5	

NB: if T-score 0 to –1.5 repeat in 1-3 years.

* Fragility fracture - defined by The World Health Organisation as resulting from a mechanical force equivalent to a fall from standing height or less which should not ordinarily cause a fracture.

Reference:

NICE Clinical Knowledge Summaries. Osteoporosis - prevention of fragility fractures.

Question

A 55-year-old lady returns for her three month follow up in your inflammatory arthropathy clinic.

She reports satisfactory symptom relief with 10 mg prednisolone daily after failing several other disease modifying agents. Her past medical history includes coeliac disease and

Next

Question

A 27-year-old Caucasian man presents with a two-year history of progressively worsening, atraumatic lower back pain and stiffness. The pain radiates to the gluteal region bilaterally and is worse in the evenings. He reports some relief with exercise. Recently, he has also noted intermittent pains in his left shoulder and the heel of his left foot.

Clinical examination demonstrated limited spinal flexion in the sagittal and frontal planes. Left shoulder pain was reproducible with resisted abduction; there was a diminished left calf squeeze test with a tender and swollen left Achilles tendon.

Given the probable diagnosis, which of the following is likely to be positive?

(Please select 1 option)

- Anti-CCP antibody
- HLA B*2705
- HLA B*2706
- Gonorrhoea antigen
- None of the above

Answer Question

Question

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Given the probable diagnosis, which of the following is likely to be positive?

Your Answer

- Anti-CCP antibody
- HLA B*2705 - This is the correct answer ✔
- HLA B*2706
- Gonorrhoea antigen
- ✓ None of the above - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This question aims to cover the following learning points:

- Distinguishing features of chronic inflammatory back pain
- Population specific HLA association
- Common differentials for ankylosing spondylitis.

This man has ankylosing spondylitis (AS).

The commonest subtype HLA associations are HLA B*2705 (Caucasians), B*2704 (Chinese, Japanese) and B*2702 (Mediterranean). The B*2706 subtype is weakly associated and commonly found in normal south east Asian individuals.

Chronic (more than three months) back pain characteristics that favour a spondyloarthritic aetiology include:

- Age of onset before 40 years
- Insidious onset
- Amelioration with exercise
- Refractory with rest
- Night pain (with improvement upon arising).

His associated extra-articular manifestations include enthesitis of the Achilles and supraspinatus tendons.

Reference:

Khan MA. Update: the twenty subtypes of HLA-B27. *Curr Opin Rheumatol.* 2000;12:235-8.

Question

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Next

Question

Which of the following most accurately describes the mechanism of action of the bisphosphonates?

(Please select 1 option)

- Calcium resorption in the distal tubule
- Fibroblast proliferation in bone marrow
- Improved vascular supply to bone marrow
- Inhibition of osteoclast activity
- Upregulation of osteoblast activity

Answer Question

Incorrect

Explanation

The mechanism of action of farnesyl diphosphate synthase within osteoclasts. In doing this they interfere with geranylgeranylation (attachment of the lipid to regulatory proteins), which causes osteoclast inactivation. This leads to reduced bone turnover, increased bone mass, and improved mineralisation.

Reference:

Reszka AA, Rodan GA. Bisphosphonate mechanism of action. *Curr Rheumatol Rep.* 2003;5:65-74.

Question

Which of the following most accurately describes the mechanism of action of the bisphosphonates?

Your Answer

- Calcium resorption in the distal tubule
- Fibroblast proliferation in bone marrow
- Improved vascular supply to bone marrow
- Inhibition of osteoclast activity - This is the correct answer ✔
- ✓ Upregulation of osteoblast activity - Incorrect answer selected ✖

Next

Question

A 70-year-old man developed acute monoarthritis of his right ankle on the second postoperative day following an elective inguinal hernia repair. He was on a diuretic for hypertension.

On examination his temperature was 38°C.

What is the most likely diagnosis?

(Please select 1 option)

- Acute rheumatoid arthritis
- Gout
- Pseudogout
- Septic arthritis
- Traumatic synovitis

Answer Question

(ESCISIT). *Ann Rheum Dis.* 2006;65:1301-11.

Question

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What is the most likely diagnosis?

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- Pseudogout
- Septic arthritis
- ✓ Traumatic synovitis - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

The most likely diagnosis is gout, given the history of recent surgery and diuretic use.

Gout is the most prevalent form of inflammatory arthropathy. It is caused by the deposition of monosodium urate crystals with resultant inflammation in the involved joint. It typically presents with acute monoarticular pain. Current EULAR guidelines state that the rapid development of severe pain, swelling, and tenderness that reaches its maximum within 6-12 hours, especially with overlying erythema, is highly suggestive of crysal arthropathy. Involvement of the first metatarsophalangeal joint is more specific for gout, but a variety of different joints can be involved. 50% of all attacks and 70% of first attacks of gout affect the first metatarsophalangeal joint.

In addition to joint symptoms, fever and malaise are common presenting features of an acute attack of gout. Acute gout can be a cause of systemic inflammatory response syndrome (SIRS) which is two or more changes of body temperature, heart rate, respiratory function, and peripheral leukocyte count.

There is a florid synovitis, with swelling and overlying erythema. Palpation is exquisitely painful. Untreated, the attack resolves spontaneously over 5-15days with itching and desquamation of the overlying skin.

The EULAR guidelines conclude that for typical presentations of gout a clinical diagnosis alone is reasonably accurate but not definitive without visualisation of crystals on microscopy.

Pyrophoshate arthropathy is less common, associated with deposition of calcium pyrophospate crystals chiefly in the knees, second and third metacarpophalangeal joints. There may be a history of haemochromatosis or osteoarthritis.

Rheumatoid arthritis most commonly manifests as a chronic polyarthritis and synovitis.

Septicaemia following an elective hernia repair would be uncommon as would traumatic synovitis. Examination of joint aspirate is always important however, to exclude septic arthritis as missing this diagnosis is associated with significant morbidity and mortality.

Although not needed to answer this question, it is important you also understand how to manage an acute episode of gout. The principles are:

- commence anti-inflammatory medication immediately, and continue for two weeks - NSAIDs are first line in conjunction with gastro-protective medication where indicated; colchicine is an alternative but is slower to work and can be associated with significant diarrhoea
- rest the affected joints
- allopurinol should not be started during an acute attack but in patients already established on allopurinol it should be continued
- if diuretics are being used to treat hypertension an alternative antihypertensive should be considered, but they should not be stopped in the presence of heart failure
- corticosteroids are highly effective, and can be used where NSAIDs are not tolerated, or in refractory disease (intra-articular, oral, intramuscular, intravenous).

Reference:

Next

Question

A 28-year-old lady presents to clinic with a one-year history of intermittently painful fingers. The pain occurs commonly in low ambient temperatures and there is commensurate skin colour change from white to blue to red. Each episode lasts approximately 15-20 minutes.

She tells you that her mother suffered from rheumatoid arthritis and Raynaud's.

Which bedside test could you perform that may indicate an underlying connective tissue disorder as the probable diagnosis?

(Please select 1 option)

- Capnography
- Cold water challenge
- Digital artery closing temperature
- Finger systolic pressure
- Nailfold capillaroscopy

Answer Question

Question

A 28-year-old lady presents to clinic with a one-year history of intermittently painful fingers. The pain occurs commonly in low ambient temperatures and there is commensurate skin colour change from white to blue to red. Each episode lasts approximately 15-20 minutes.

She tells you that her mother suffered from rheumatoid arthritis and Raynaud's.

Which bedside test could you perform that may indicate an underlying connective tissue disorder as the probable diagnosis?

Your Answer

- Capnography
- Cold water challenge
- Digital artery closing temperature
- Finger systolic pressure
- ✓ Nailfold capillaroscopy - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This question covers the following learning points:

- Presentation and triggers of Raynaud's phenomenon (RP)
- Clinical evaluation of RP
- Characteristics suggestive of secondary RP
- Connective tissue disease causes of RP.

This young woman gives a history consistent with Raynaud's phenomenon and has a positive family history of rheumatological disease.

Nailfold capillaroscopy is performed by applying a drop of oil onto the periungual region of the nail and using an ophthalmoscope set to 40 diopter to examine.

Observation of a relative paucity of capillary loops or enlarged and distorted loops is positively predictive[1,2] of an underlying connective tissue disorder (for example, rheumatoid arthritis, mixed connective tissue disease, polymyositis, dermatomyositis, Sjögren's syndrome).

Finger systolic pressure and digital artery closing temperature are laboratory investigations for other potential secondary causes.

Cold water challenge is a provocation test that is no longer recommended as responses are inconsistent even in those with established RP.

Reference:

1. Cutolo M, et al. Capillaroscopy. *Best Pract Res Clin Rheumatol.* 2008;22:1093-108.
2. Ingegnoli F, et al. Prognostic model based on nailfold capillaroscopy for identifying Raynaud's phenomenon patients at high risk for the development of a scleroderma spectrum disorder: PRINCE (prognostic index for nailfold capillaroscopic examination). *Arthritis Rheum.* 2008;58:2174-82.

Question

A 28-year-old lady presents to clinic with a one-year history of intermittently painful fingers. The pain occurs commonly in low ambient temperatures and there is

Next

Question

A 50-year-old man is brought in by ambulance complaining of a two day history of malaise, subjective fever, sweating, nausea, abdominal pains and foul smelling diarrhoea.

He has a past medical history of Crohn's disease, which has been quiescent for three years following the initiation of immunosuppressive therapy. He was commenced on allopurinol three weeks ago, after suffering another flare of his gout.

Clinical examination demonstrated; he is confused, clinically dehydrated, GCS 14, temperature 35.1°C, pulse 101 + regular, BP 95/66 mmHg, normal chest sounds, generalised abdominal tenderness with hyperkinetic bowel sounds.

Blood tests revealed:

Hb	120 g/L	(130-180)
MCV	90 fL	(80-96)
WCC	1.5 $\times 10^9$/L	(4-11)
Neutrophils	1 $\times 10^9$/L	(1.5-7)
Lymphocytes	0.8 $\times 10^9$/L	(1.5-4)
Platelets	50 $\times 10^9$/L	(150-400)
Creatinine	150 µmol/L	(60-110)
Urea	8.9 mmol/L	(2.5-7.5)
Alanine aminotransferase	50 U/L	(5-35)
Amylase	70 U/L	(60-180)
CRP	10 mg/L	(<10)
Westegren ESR	25 mm/hr	(0 - 20)
Uric acid	200 mmol/L	

What is the most likely underlying cause of his presentation?

(Please select 1 option)

Answer Question

WCC	1.5 $\times 10^9$/L	(4-11)
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What is the most likely underlying cause of his presentation?

(Please select 1 option)

- Acute pancreatitis
- Allopurinol toxicity
- Azathioprine toxicity
- Calcium pyrophosphate deposition disease (CPPD)
- Crohn's flare

Answer Question

Creatinine	150 µmol/L	(60-110)
Urea	8.9 mmol/L	(2.5-7.5)
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Your Answer

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- Allopurinol toxicity
- Azathioprine toxicity - This is the correct answer ✔
- Calcium pyrophosphate deposition disease (CPPD)
- ✓ Crohn's flare - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This questions aims to cover:

- Basic mechanism of action and pharmacokinetics of allopurinol
- Basic mechanism of action of azathioprine, and
- Potential consequence of their interaction.

This patient has developed bowel sepsis (foul smelling diarrhoea, hypothermic, tachycardic, hypotensive) secondary to pancytopenia induced by the co-administration of allopurinol and azathioprine.

The prodrug azathioprine is metabolised to its active compound 6-mercaptopurine (6-MP). 6-MP undergoes catabolic oxidation to 6-thiouric acid by xanthine oxidase. Allopurinol has a peak onset of action of one to two weeks and works by inhibiting xanthine oxidase. Co-administration of these drugs may lead to accumulation of 6-MP and increases the risk of myelosuppression. The newer xanthine oxidase inhibitor, febuxostat, can also result in the same problem and is also contraindicated.

A Crohn's flare would not typically cause pancytopenia.

Normal amylase refutes pancreatitis.

Reference:

Diagnosis and classification of osteoarthritis.

Question

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Clinical examination demonstrated; he is confused, clinically dehydrated, GCS 14, temperature 35.1°C, pulse 101 + regular, BP 95/66 mmHg, normal chest sounds, generalised abdominal tenderness with hyperkinetic bowel sounds.

Blood tests revealed:

Next

Question

A 65-year-old male is referred due to inadequate pain relief for his hip osteoarthritis.
His GP has prescribed paracetamol and codeine 30 mg four times daily but he has found little improvement in his pain relief.
He has a past history of asthma for which he occasionally takes an inhaler.
What is the most likely explanation for the lack of clinical efficacy associated with this medication?

(Please select 1 option)

- Fast acetylator status
- Impaired absorption of codeine
- Inadequate dose of codeine
- Interaction of paracetamol with codeine
- Ipratropium accelerates the metabolism of codeine

Answer Question

Incorrect

Explanation

The most likely explanation is that the codeine dose is inadequate.
Studies have shown that paracetamol 1 g combined with codeine at dose of 60 mg have the best analgesic outcomes.
Ipratropium does not increase the metabolism of codeine.

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- ✓ Ipratropium accelerates the metabolism of codeine - Incorrect answer selected ✖

Next

Question

A 26-year-old male presents with a three month history of arthralgia, mouth ulceration and eye irritation.

On examination he was apyrexial, had some ulceration of the mouth, bilaterally swollen wrists and effusions, with reduced range of movements of both knees.

Examination of the external genitalia revealed a scrotal ulcer.

His investigations showed:

White cell count	12 $\times 10^9$/L	(4-11)
C reactive protein	120 mg/L	(<10)
Rheumatoid factor	Negative	

What is the most likely diagnosis?

(Please select 1 option)

- Behçet's syndrome
- Inflammatory bowel disease
- Psoriatic arthritis
- Reiter's syndrome
- Sjögren's syndrome

Answer Question

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- Inflammatory bowel disease
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Rate this question

Next

Incorrect

Explanation

This man has Behçet's on the basis of his orogenital ulceration and oligoarthritis.
Behçet's syndrome is a multisystem disorder characterised by:

- Recurrent oral and genital ulceration
- Eye lesions (anterior or posterior uveitis or retinal vasculitis)
- Skin lesions (erythema nodosum, papulopustular lesions or folliculitis), and
- A positive pathergy test (although this is rarely done in clinical practice).

Other features include:

- Musculoskeletal involvement with a mono- or oligoarthropathy
- Venous thromboembolism
- Neurological, and
- Gastrointestinal features.

Reiter's syndrome is a clinical triad of urethritis, conjunctivitis and arthritis after an infective dysentery. It is now referred to as reactive arthritis.
Genital ulceration is not a feature of systemic lupus erythematosus, rheumatoid arthritis or Sjögren's syndrome.
Inflammatory bowel disease can be associated with an oligoarthropathy, occasionally with uveitis, but you would expect a strong history of gastrointestinal symptoms.

Further Reading:

Medscape. Dermatologic Aspects of Behçet Disease.

Question

A 26-year-old male presents with a three month history of arthralgia, mouth ulceration and eye irritation.
On examination he was apyrexial, had some ulceration of the mouth, bilaterally swollen

Next

Question

A 60-year-old lady develops a fracture of the wrist following a fall; dual energy x ray absorptiometry (DEXA) scan reveals osteoporosis in lumbar spine and hip.

She has been commenced on once weekly alendronate 70 mg weekly and also takes a Calcichew tablet.

By what mechanism does the bisphosphonate function in the treatment of osteoporosis?

(Please select 1 option)

- Enhancing the absorption and action of vitamin D
- Enhancing the absorption of calcium from the gut
- Enhancing the survival and function of osteoblasts
- Enhancing the survival and function of osteoclasts
- Reducing the survival and function of osteoclasts

Answer Question

Explanation

The mechanism of action of bisphosphonates involves the inhibition of farnesyl diphosphate synthase within osteoclasts. In doing this they interfere with geranylgeranylation (attachment of the lipid to regulatory proteins), which causes osteoclast inactivation. This leads to reduced bone turnover, increased bone mass and improved mineralisation.

Bisphosphonates licensed for the prevention and treatment of osteoporosis include alendronate, risedronate and ibandronate.

The bisphosphonates zoledronate and pamidronate are used for the treatment of metastatic bone disease and short term management of hypercalcaemia.

Reference:

Reszka AA, Rodan GA. Bisphosphonate mechanism of action. *Curr Rheumatol Rep.* 2003;5:65-74.

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- ✓ Reducing the survival and function of osteoclasts - Correct ✔

Next

Question

A 73-year-old male presented with an acute attack of gout in his left knee.
Which of the following is the most likely underlying metabolic cause?

(Please select 1 option)

- Decreased renal excretion of uric acid
- Endogenous overproduction of uric acid
- Excessive dietary purine intake
- Lactic acidosis
- Starvation

Answer Question

Becker MA. Hyperuricemia and Gout. In: Valle D, (ed). *The Online Metabolic and Molecular Bases of Inherited Disease (OMMBID)*. New York: McGraw-Hill; 2008. chapter 205.
Chilappa CS, et al. Gout and hyperuricemia. *Compr Ther.* 2010;36:3-13.
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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Gout is the most prevalent form of inflammatory arthropathy. It is caused by the deposition of monosodium urate crystals with resultant inflammation in the involved joint. Serum urate concentrations exceeding 7 mg/dl are associated with increased risk of gout.

The aetiology of gout can broadly be divided into cases where there is:

- underexcretion of uric acid via the kidney (90%), or
- endogenous overproduction of uric acid (10%),

although in practical terms the distinction is rarely made as allopurinol is the mainstay of long term treatment (not during the acute attack) in both groups.

Uric acid is the end product of purine metabolism. Its production and excretion are tightly regulated and, in normal circumstances, uric acid excretion is two thirds renal and one third via intestinal bacterial uricolysis. Where renal elimination is impaired, the amount of extra-renal excretion can be increased.

In a 73-year-old man, it is almost certainly reduced renal excretion due to deteriorating renal function and possibly diuretic use.

Excessive dietary intake of purines is rarely a cause of sustained hyperuricaemia, although patients should be advised to follow a low purine diet to reduce the risk of recurrent attacks.

Starvation leads to an increase in lactic acid, which impairs the kidneys' ability to excrete uric acid and therefore increases the risk of developing gout. This is however a rare underlying cause, and decreased renal excretion is more likely in this case.

Gout can also be caused by inborn errors of metabolism which alter uric acid homeostatis. These are mainly inherited enzyme defects, and present in younger patients.

As a final point, it is also important to note that gout appears to be an independent risk factor for cardiovascular mortality and morbidity, additional to the risk conferred by its association with more traditional risk factors.

Reference:

Becker MA. Hyperuricemia and Gout. In: Valle D, (ed). *The Online Metabolic and Molecular Bases of Inherited Disease (OMMBID)*. New York: McGraw-Hill; 2008. chapter 205.

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Next

Question

A 35-year-old woman who was two months postpartum presented with a four week history of joint pain, facial rash and fever.
Blood tests reveal an ESR of 40 mm/hour (0-20).
What is the most likely diagnosis?

(Please select 1 option)

- Reactive arthritis
- Rheumatoid arthritis
- Sarcoidosis
- Systemic lupus erythematosus (SLE)
- Viral arthritis

Answer Question

presence of non-caseating granulomas in affected tissue. Approximately 5% of cases are asymptomatic and are detected on chest x ray.

Sarcoid commonly presents with a dry cough, with or without dyspnoea and systemic complaints.

Viral arthritis is a condition which is difficult to diagnose. It occurs during the viral prodrome, and is often accompanied by a rash. Most commonly patients present with symmetrical small joint involvement, although the exact pattern depends on the causative virus. Viruses commonly associated include parvovirus B19, hepatitis A, B and C, rubella and HIV.

Whilst the fever, rash and joint pain in the above scenario would be consistent with viral arthritis, symptoms would have typically resolved over a four week period.

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- Sarcoidosis
- Systemic lupus erythematosus (SLE) - This is the correct answer ✔
- ✓ Viral arthritis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The triad of fever, arthralgia and rash in a woman of childbearing age should suggest the diagnosis of systemic lupus erythematosus (SLE).

SLE is a heterogenous multisystem autoimmune inflammatory disease, in which antinuclear antibodies occur. Its presentation and course are highly variable, ranging from indolent to fulminant. The diagnosis is based on the American College of Rheumatology (ACR) criteria. Management depends on disease severity.

Reactive arthritis is a post-infective autoimmune condition that is associated with gastrointestinal (*Shigella*, *Salmonella*, *Campylobacter*) and genitourinary infections (*Chlamydia*). Classically it presents with arthritis and conjunctivitis. There will be a recent history of gastroenteritis or urethritis.

Rheumatoid arthritis typically presents with a persistent symmetrical polyarthritis affecting the hands and feet. Extra-articular features such as fever and rash occur much less commonly than in SLE. Anti-CCP antibodies are highly specific and should be tested if the diagnosis is suspected.

Sarcoidosis is a multisystem inflammatory disease of unknown aetiology, characterised by the presence of non-caseating granulomas in affected tissue. Approximately 5% of cases are asymptomatic and are detected on chest x ray.

Sarcoid commonly presents with a dry cough, with or without dyspnoea and systemic complaints.

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Next

Question

A 32-year-old woman is referred from her general practice following a presentation with shortness of breath, myalgia, arthralgia, and a skin rash.

Which of the following antibodies when found in this patient is most specific for systemic lupus erythematosus (SLE)?

(Please select 1 option)

- ANA
- Anti-Ro
- Anti-Sm
- cANCA
- Rheumatoid factor

Answer Question

Incorrect

Explanation

The presence of anti-Sm antibodies is more specific for SLE than the other options.

ANA is positive in around 95% of patients with SLE but also occur in juvenile inflammatory arthritis, chronic active hepatitis, and Sjögren's syndrome.

cANCA is present in granulomatosis with polyangiitis and pANCA is elevated in microscopic polyangiitis, another type of vasculitis.

Rheumatoid factor is found in several difference autoimmune conditions including rheumatoid arthritis, Felty's syndrome, systemic sclerosis, and Sjögren's syndrome.

Anti-Ro is seen in SLE and in overlap syndromes with Sjögren's disease.

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Your Answer

- ANA
- Anti-Ro
- Anti-Sm - This is the correct answer ✔
- cANCA
- ✓ Rheumatoid factor - Incorrect answer selected ✖

Next

A 42-year-old woman who has recently returned from a holiday to Spain presents to the clinic with thirst, polyuria and a rash affecting both shins. Her only past medical history of note is mild asthma diagnosed by her GP, but she tells you the inhaler he prescribed has made no difference to her symptoms.

On examination, her BP is 135/85, pulse is 75 and regular. There are small palpable lymph nodes on palpation of the neck and axillae. Her chest is clear on auscultation, and her abdomen is soft and non-tender with a BMI of 29. There is a raised red/purple rash on both shins.

Investigations:

Hb	120 g/l	(115-160)
WCC	$10.0x10^9$/l	(6-10 [atypical lymphocytes seen on film])
PLT	$225x10^9$/l	(150-400)
Na	140 mmol/l	(135-145)
K	4.5 mmol/l	(3.5-5.5)
Cr	105 µmol/l	(50-90)
CRP	55 mg/dl	(<10)
ESR	45 mm/hr	(<10)
Ca2+	2.82 mmol/l	(2.1-2.65)

Which of the following is the most likely underlying diagnosis?

(Please select 1 option)

- Churg-Strauss syndrome
- Idiopathic pulmonary fibrosis
- Sarcoidosis
- Tuberculosis
- Wegener's granulomatosis

Answer Question

PLT	225x10⁹/l	(150-400)
Na	140 mmol/l	(135-145)
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- Tuberculosis
- ✓ Wegener's granulomatosis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The answer is sarcoidosis. The clues here include the non-responsiveness of chest symptoms to the salbutamol inhaler, erythema nodosum, non-specific elevation in inflammatory markers, and hypercalcaemia.

Patients with sarcoid frequently present with symptoms of hypercalcaemia after a holiday because increased sun exposure results in increased production of vitamin D. A chest radiograph, not reported here, may show a variety of abnormalities, including bilateral hilar lymphadenopathy. The mainstay of treatment of sarcoidosis is with oral corticosteroids, but patients with mild symptoms can be managed with surveillance alone.

None of the other options listed commonly causes hypercalcaemia, and the inflammatory markers are only mildly elevated, reducing the probability of her symptoms being due to a chronic infection such as tuberculosis.

Wegener's granulomatosis is associated with symptoms of sinusitis due to granuloma formation, and Churg-Strauss syndrome would explain the asthma-like symptoms but not the others.

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Next

Question

A 30-year-old housewife with SLE (ANA positive 1:1280, dsDNA positive, and anti-cardiolipin antibody positive on two occasions), developed a right below knee DVT.
She has no past history of arterial or venous thrombosis.
Which of the following is the most appropriate management plan for her?

(Please select 1 option)

- Warfarin, and aspirin 75 mg/day for life
- Warfarin for 3 months
- Warfarin for 3 months, followed by aspirin 75 mg/day
- Warfarin for 6 months, followed by aspirin 75 mg/day
- Warfarin for life

Answer Question

2. Ng HJ, Crowther MA. Anticoagulation therapy in the antiphospholipid syndrome: recent advances. *Curr Opin Pulm Med.* 2005;11:368-72.

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- Warfarin for 6 months, followed by aspirin 75 mg/day
- ✓ Warfarin for life - Correct ✔

Rate this question



Next

Correct

Explanation

This patient has antiphospholipid antibody syndrome (APAS). APAS can be diagnosed if:

- the patient has anticardiolipin antibodies, or lupus anticoagulant on two occasions, over a period of 12 weeks,

and either:

- has had a thrombus, or
- a history of recurrent < 10 week pregnancy loss, or one pregnancy loss > 10 weeks in gestation when other causes of pregnancy loss have been excluded.

The occurrence of even a single thrombotic event in a patient with antiphospholipid syndrome warrants lifelong anticoagulation, as the risk of recurrence is 20-70%. Low molecular weight heparin should be used initially whilst loading warfarin. In general, it is recommended that the INR is maintained above 2.0, although a higher level (above 3) may be indicated for patients with recurrent thrombosis on treatment. Anticoagulation to prevent foetal loss remains controversial.

Further Reading:

1. Hanly JG. Antiphospholipid syndrome: an overview. *CMAJ.* 2003;168:1675-82.
2. Ng HJ, Crowther MA. Anticoagulation therapy in the antiphospholipid syndrome: recent advances. *Curr Opin Pulm Med.* 2005;11:368-72.

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Your Answer

Next

Question

A 31-year-old nurse presents with chronic pain. The pain changes from day to day, but often focuses in the lower back.

She is pale and looks unwell. She complains of waking up frequently at night, and feels unrefreshed in the morning. She also complains of intermittent constipation and diarrhoea.

Examination is essentially normal - but the patient complains of tenderness in multiple areas on palpation. Basic blood tests are normal.

What is the most likely diagnosis?

(Please select 1 option)

- Depressive disorder
- Fibromyalgia
- Hypothyroidism
- Schizophrenia
- Somatoform disorder

Answer Question

Explanation

Fibromyalgia is becoming a recognised medical diagnosis, and is based on the presence of pain in all four quadrants of the body, as well as tenderness in 11 of 18 anatomically defined trigger areas. The aetiology is not fully understood, but may involve hyperexcitability within the spinal cord or brainstem, altered pain perception and somatisation.

Approximately 50% of patients with fibromyalgia complain of diarrhoea and constipation, often associated with abdominal bloating. Morning fatigue is present in a large proportion of these patients, and patients often look unwell, and may appear depressed and anxious. Other features include tissue swelling, morning stiffness and sleep disorders.

Somatoform disorders are a group of psychological disorders in which a patient experiences physical symptoms despite the absence of an underlying medical condition that can fully explain their presence. The clinical picture here is too close to that of fibromyalgia to be a somatoform disorder.

Depression should be a diagnosis of exclusion, and fibromyalgia is a more likely diagnosis here. If the patient had hypothyroidism you would expect other features in the history, such as cold intolerance. Schizophrenia would not explain the clinical findings in this case.

Question

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What is the most likely diagnosis?

Your Answer

- Depressive disorder
- Fibromyalgia - This is the correct answer ✔

Next

A 66-year-old man has a painful, swollen right knee and difficulty in walking for three days.

He had two self-limiting episodes of severe pain and swelling in the right big toe last year. He drinks 26 cans of beer/week.

On examination, his temperature is 36.8°C. The right knee is red, swollen, warm and tender and has restricted movement.

The knee aspirate shows no organisms on Gram stain, plenty of leucocytes, and negatively birefringent crystals on polarised light microscopy.

The results of recent blood tests are:

Hb	123 g/L	(130-180)
WBC	14.3 $\times 10^9$/L	(4-11)
Neutrophils	88%	(40-75)
Platelet	340 $\times 10^9$/L	(150-400)
ESR	79 mm/hr	(0-15)
Urate	521 µmol/L	(210-415)

Urea, electrolytes and creatinine are normal.

What is the most likely diagnosis?

(Please select 1 option)

- Gout
- Osteoarthritis
- Pseudogout
- Reactive arthritis
- Septic arthritis

Answer Question

Hb	123 g/L	(130-180)
WBC	14.3 $\times 10^9$/L	(4-11)
Neutrophils	88%	(40-75)
Platelet	340 $\times 10^9$/L	(150-400)
ESR	79 mm/hr	(0-15)
Urate	521 µmol/L	(210-415)

Urea, electrolytes and creatinine are normal.
What is the most likely diagnosis?

Your Answer

- Gout - This is the correct answer ✔
- Osteoarthritis
- Pseudogout
- Reactive arthritis
- ✓ Septic arthritis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Monosodium urate crystals are needle shaped and are negatively birefringent. Therefore, this patient has acute gout.

He has several risk factors for gout including:

- age more than 40 years
- male gender, and
- high alcohol consumption (more than 21 units for men, more than 14 units for women).

Pseudogout is caused by intra-articular shedding of calcium pyrophosphate dihydrate (CPPD) crystals. CPPD crystals are rhomboid and show a weak positive birefringence on polarised light microscopy. Pseudogout is common at the knee but rarely leads to podagra.

There is no history of recent infections to suggest reactive arthritis.

Septic arthritis of the knee is less likely as the Gram stain is negative.

Osteoarthritis of the knee usually presents as chronic mechanical joint pain.

Question

A 66-year-old man has a painful, swollen right knee and difficulty in walking for three days.

He had two self-limiting episodes of severe pain and swelling in the right big toe last year. He drinks 26 cans of beer/week.

On examination, his temperature is 36.8°C. The right knee is red, swollen, warm and tender and has restricted movement.

The knee aspirate shows no organisms on Gram stain, plenty of leucocytes, and negatively birefringent crystals on polarised light microscopy.

The results of recent blood tests are:

Hb	123 g/L	(130-180)
WBC	14.3 $\times 10^9$/L	(4-11)
Neutrophils	88%	(40-75)

Next

Question

A 67-year-old man with Wegener's granulomatosis, previously treated with cyclophosphamide, is currently on azathioprine.

His vasculitis is well controlled. He was found to have microscopic haematuria on two occasions a month apart. Urine culture showed no growth. There is no proteinuria, abdominal pain, and a renal ultrasound is normal.

He has normal inflammatory markers and stable urea electrolytes and creatinine over the last year.

What is the next step in his management?

(Please select 1 option)

- Cystoscopy
- Prolonged urinary culture
- Renal angiogram
- Renal biopsy
- Urine culture for TB

Answer Question

Incorrect

Explanation

Cyclophosphamide causes haemorrhagic cystitis, and increases the risk of developing bladder cancer in the future. The risk increases with increasing doses of cyclophosphamide.

Renal biopsy is not indicated as there is no evidence of active renal vasculitis - normal inflammatory markers, stable creatinine.

Renal angiogram is used to investigate renal artery stenosis.

Renal tract TB is unlikely in the absence of proteinuria.

Question

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What is the next step in his management?

Your Answer

- Cystoscopy - This is the correct answer ✔
- Prolonged urinary culture
- Renal angiogram
- Renal biopsy

Next

A 16-year-old girl comes to the surgery feeling under the weather. She has recently suffered from a streptococcal throat infection but feels that she has not really picked up since, although she did have a course of oral penicillin.

She complains of an extensive purpuric rash which is affecting her buttocks, the back of her legs, and the ulnar side of her arms. There is also a history of abdominal and joint pains.

On examination her BP is 105/70 mmHg, with a pulse of 75. She has a purpuric rash, mainly affecting her buttocks and the tops of her legs.

Investigations show

Haemoglobin	115 g/L	(115-160)
White cell count	11.2 $\times 10^9$/L	(4-11)
Platelets	230 $\times 10^9$/L	(150-400)
Serum sodium	140 mmol/L	(135-146)
Serum potassium	4.2 mmol/L	(3.5-5)
Creatinine	135 µmol/L	(79-118)
Urine	Blood ++	
	Protein ++	

Which of the following immunoglobulins is most likely to be raised?

(Please select 1 option)

- IgA
- IgD
- IgE
- IgG
- IgM

Answer Question

White cell count	11.2 $\times 10^9$/L	(4-11)
Platelets	230 $\times 10^9$/L	(150-400)
Serum sodium	140 mmol/L	(135-146)
Serum potassium	4.2 mmol/L	(3.5-5)
Creatinine	135 µmol/L	(79-118)
Urine	Blood ++	
	Protein ++	

Which of the following immunoglobulins is most likely to be raised?

Your Answer

- IgA - This is the correct answer ✔
- IgD
- IgE
- IgG
- ✓ IgM - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This patient has Henoch-Schönlein purpura (HSP). HSP is more commonly seen in infants, but may also be seen in older individuals.

The buttock rash seen here is characteristic as is the blood and proteinuria. Creatinine may be elevated, although progression to renal failure is rare. Platelet count can be low, normal or elevated. IgA levels are elevated and the patient may also have an eosinophilia.

HSP is usually managed with supportive measures only. There is no evidence that steroid therapy impacts on progression to renal failure.

Non-steroidals may be of value in treating joint pain.

Question

A 16-year-old girl comes to the surgery feeling under the weather. She has recently suffered from a streptococcal throat infection but feels that she has not really picked up since, although she did have a course of oral penicillin.

She complains of an extensive purpuric rash which is affecting her buttocks, the back of her legs, and the ulnar side of her arms. There is also a history of abdominal and joint pains.

On examination her BP is 105/70 mmHg, with a pulse of 75. She has a purpuric rash, mainly affecting her buttocks and the tops of her legs.

Investigations show

Haemoglobin	115 g/L	(115-160)
White cell count	11.2 $\times 10^9$/L	(4-11)
Platelets	230 $\times 10^9$/L	(150-400)
Serum sodium	140 mmol/L	(135-146)
Serum potassium	4.2 mmol/L	(3.5-5)
Creatinine	135 µmol/L	(79-118)
Urine	Blood ++	

Next

Question

A 60-year-old woman attends the Emergency department with a six week history of lethargy, neck pain, weakness in the upper limbs and gait disturbance. She describes occasional episodes of electrical sensation shooting down her spine on flexing her neck.

She has a long history of lower back pain, primary generalised osteoarthritis, and vitiligo. She takes Voltarol regularly. She neither smokes nor drinks.

She is of Pakistani origin and has been in this country for the past six years. There is no history of recent foreign travel.

On examination she is afebrile. General examination is unremarkable except for vitiligo. Examination of the cranial nerves is normal. There is no wasting of the limbs but there are a few fasciculations in brachioradialis and biceps on the right. Tone is mildly increased. Apart from mild weakness of elbow, wrist and finger flexion and extension, more marked on the right, power is normal. There is inversion of the right supinator reflex, and triceps, jerks are reduced bilaterally. Sensation is mildly reduced in the C5 and C6 dermatomes.

Investigations show:

Hb	113 g/L	(115-165)
WCC	7 $\times 10^9$/L	(4-11)
Platelets	160 $\times 10^9$/L	(150-400)
Coagulation screen	Normal	
ESR	27 mm/h	(0-30)
CRP	17 mg/L	(<10)
Sodium	137 mmol/L	(137-144)
Potassium	4.2 mmol/L	(3.5-4.9)
Urea	5.7 mmol/L	(2.5-7.5)
Creatinine	87 µmol/L	(60-110)
Protein	73 g/L	(61-76)
Albumin	38 g/L	(37-49)
Calcium	2.23 mmol/L	(2.2-2.6)
Phosphate	1.2 mmol/L	(0.8-1.4)

Answer Question

Potassium	4.2 mmol/L	(3.5-4.9)
Urea	5.7 mmol/L	(2.5-7.5)
Creatinine	87 µmol/L	(60-110)
Protein	73 g/L	(61-76)
Albumin	38 g/L	(37-49)
Calcium	2.23 mmol/L	(2.2-2.6)
Phosphate	1.2 mmol/L	(0.8-1.4)
LFTs	Normal	
CXR	Normal	
x Ray cervical spine	Extensive osteophytes	
	Normal alignment	

What is the most likely diagnosis?

(Please select 1 option)

- Degenerative cervical spondylosis
- Motor neurone disease
- Multiple myeloma
- Polymyalgia rheumatica
- Syringomyelia

Answer Question

Albumin	38 g/L	(37-49)
Calcium	2.23 mmol/L	(2.2-2.6)
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LFTs	Normal	
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x Ray cervical spine	Extensive osteophytes	
	Normal alignment	

What is the most likely diagnosis?

Your Answer

- Degenerative cervical spondylosis - This is the correct answer ✔
- Motor neurone disease
- Multiple myeloma
- Polymyalgia rheumatica
- ✓ Syringomyelia - Incorrect answer selected ✖

Rate this question

Next

Explanation

Cervical spondylosis is the most common progressive disorder of the spine, and is associated with normal aging. It results from degeneration of the intervertebral discus and facet joints in the cervical spine. Radiographic evidence of disc degeneration is present in 25% of patients younger than 40 years, 50% over 40 and 85% over 60. In the majority of cases it is asymptomatic, and it is difficult to define the boundary between normal ageing and the disease process. Risk factors include rugby, horse-riding and flying, all of which increase loads on the head. Both sexes are affected equally, but problems begin earlier in males.

Degenerative changes affecting the intervertebral discs, vertebrae, facet joints, and ligamentous structures encroach on the cervical spinal canal and damage the cord, especially in patients with a congenitally small canal.

Symptoms related to myelopathy and radiculopathy are caused by the formation of osteophytes, which narrow the diameter of the spinal canal at one or multiple levels. This may produce direct neurological damage or ischaemic changes and therefore lead to spinal cord disturbances. Radiculopathy is due to compression, stretching or angulation of the cervical nerve roots. Myelopathy is due to compression, ischaemia or recurring minor trauma to the cord. Cervical spondylitic myelopathy is the most common cause of myelopathy in adults. Patients present with signs and symptoms of cervical spinal cord dysfunction with or without cervical nerve root injury. There is therefore a mixture of upper and lower motor neurone signs. These may or may not be accompanied by pain in the neck and/or upper limb, orbits or temporal regions. In addition there is often cervical stiffness, and poor balance. On examination there is limited range of movement of the cervical spine and poorly localised tenderness.

Radiculopathy causes dermatomal pain, often with accompanying changes in sensation or weakness in related muscles. The most commonly affected nerve roots are C5-7, and sensory symptoms (shooting pain, numbness, hyperaesthesia) are more common than weakness. Dural irritation can be demonstrated with the Spurling test in which radicular pain is reproduced with lateral flexion and rotation of the neck, with pressure on top of the patient's head. Reflexes are usually reduced.

The differential diagnosis is broad, and includes acute neck strain, osteomyelitis, fibromyalgia, inflammatory arthritis and osteoporosis. The diagnosis can often be made on clinical grounds, but if neurological abnormality is present appropriate investigations include MRI and electrophysiology. High signal-intensity lesions on MRI indicate a poor prognosis.

Management can be medical or surgical. Initially conservative measures such as regular activity, physiotherapy and addressing risk factors should be instigated. A cervical collar should not be used. Analgesia, anti-inflammatories and tricyclic antidepressants can be helpful. Indications for surgery include progressive neurological defects, compression of the cervical nerve root and/or spinal cord and intractable pain. Decompression improves neurologic function in some patients and prevents worsening in others, but there are significant risks. Epidural injection can be considered where surgical intervention is not an option.

Next

Indications for surgery include progressive neurological defects, compression of the cervical nerve root and/or spinal cord and intractable pain. Decompression improves neurologic function in some patients and prevents worsening in others, but there are significant risks. Epidural injection can be considered where surgical intervention is not an option.

In general, progression of cervical spondylosis is slow, although 10% develop chronic neck pain.

Motor neurone disease is an important differential diagnosis of upper and lower motor neuron dysfunction in this age group. It is slightly more prevalent in men than women. However, you would expect muscular weakness to be the predominant symptom and this is only minor in the above case. Sensory disturbance is uncommon.

Myeloma can cause spinal cord and or nerve/root compression but one would expect other features to be present such as bone pain, bleeding or bruising and symptoms of hypercalcaemia. Blood tests typically show anaemia, leucopenia and thrombocytopeania, none of which are present in this case.

Polymyalgia rheumatica is an inflammatory disorder characterised by severe bilateral pain and morning stiffness of the neck, shoulder and pelvic girdle. The ESR and CRP are markedly raised, and neurological signs are uncommon.

In syringomyelia there is a fluid-filled cavity within the central spinal cord (usually cervical). As this enlarges and expands it compresses the corticospinal and spinothalamic tracts, and later the anterior horn cells. Sensory symptoms are therefore a dominant feature. It most commonly presents in the 20s and 30s.

Reference:

1. Rao RD, et al. Degenerative cervical spondylosis: clinical syndromes, pathogenesis, and management. *J Bone Joint Surg Am.* 2007;89(6):1360-78.
2. Shedid D, Benzel EC. Cervical spondylosis anatomy: pathophysiology and biomechanics. *Neurosurgery.* 2007;60(1 Supp1 1):S7-13.
3. Tracy JA, Bartleson JD. Cervical spondylotic myelopathy. *Neurologist.* 2010;16(3):176-87.

Question

A 60-year-old woman attends the Emergency department with a six week history of lethargy, neck pain, weakness in the upper limbs and gait disturbance. She describes occasional episodes of electrical sensation shooting down her spine on flexing her neck.

She has a long history of lower back pain, primary generalised osteoarthritis, and vitiligo. She takes Voltarol regularly. She neither smokes nor drinks.

She is of Pakistani origin and has been in this country for the past six years. There is no history of recent foreign travel.

Next

Question

A 45-year-old woman is admitted with a spiking temperature and sweats.

She has been unwell for the last three weeks with flitting arthralgia and lethargy. There is a rash over her trunk which is most prevalent in the mornings.

Blood cultures are sterile. Her recent transthoracic echocardiogram is normal. ESR is 56 mm/hour. Her ferritin is elevated at 6000 mg/L. Autoimmune screen is negative.

What is the likely diagnosis?

(Please select 1 option)

- Adult onset Still's disease
- Bacterial endocarditis
- Meningitis
- Rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

Question

A 45-year-old woman is admitted with a spiking temperature and sweats.
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Your Answer

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- Bacterial endocarditis
- Meningitis
- Rheumatoid arthritis
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Still's disease is a febrile syndrome in young adults (16-35 years) which affects multiple organs.The diagnosis is mainly one of exclusion.

The clinical features include:

- High spiking fever (once a day, with return of temperature to normal)
- Arthralgia/arthritis
- Sore throat
- Transient maculopapular rash (mildly pruritic in 1/3)
- Lymphadenopathy
- Hepatosplenomegaly, and
- Pleuritis/pericarditis.

Rarely there may be:

- Aseptic meningitis
- Cranial nerve palsies
- Iritis, and
- Peripheral neuropathy.

There is often delay in diagnosis.

Hyperferritinaemia (greater than five times normal) is present in 90% of cases.

Further Reading:

Efthimiou P, Paik PK, Bielory L. Diagnosis and management of adult onset Still's disease. *Ann Rheum Dis.* 2006;65:564-72.

Question

A 45-year-old woman is admitted with a spiking temperature and sweats.

Next

Question

You see a 44-year-old woman with a three month history of progressive pain, swelling and stiffness in both knees. Her symptoms are worse in the morning, and it takes an hour or so to loosen up the joints. She has had no recent preceding illness and there is no personal or family history of any chronic skin conditions.

Since she was a teenager she has had painful fingers and toes when they are exposed to cold weather, but her digits do not change colour. She has also recently had pain and stiffness in her fingers and toes in the morning, and this fluctuates from day to day. She occasionally drinks alcohol.

On examination you find reduced flexion and extension and an effusion in both knees. She has bilateral metatarsalgia on squeezing her toes. Examination of her fingers is normal and there is no psoriasis of her skin or nails.

Recent blood tests showed:

Haemoglobin	131 g/L	(130-180)
White cell count	8.2 $\times 10^3/\mu l$	(4-11)
Neutrophil count	5.1 $\times 10^3/\mu l$	(1.5-7)
Platelet count	280 $\times 10^3/\mu l$	(150-400)
ESR	48 mm/hr	(0-20)
Urea	5.0 mEq/L	(2.5-7.5)
Creatinine	82 mEq/L	(60-110)
Sodium	142 mEq/L	(137-144)
Potassium	4.2 mEq/L	(3.5-4.9)

Rheumatoid factor (RF): positive (1:256).

Antinuclear antibody (ANA): positive (1:40)

What is the most likely diagnosis?

(Please select 1 option)

Answer Question

Haemoglobin	131 g/L	(130-180)
White cell count	8.2 $\times 10^3/\mu l$	(4-11)
Neutrophil count	5.1 $\times 10^3/\mu l$	(1.5-7)
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Rheumatoid factor (RF): positive (1:256).
Antinuclear antibody (ANA): positive (1:40)
What is the most likely diagnosis?

(Please select 1 option)

- Pseudogout
- Psoriatic arthritis
- Reactive arthritis
- Rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

ESR	48 mm/hr	(0-20)
Urea	5.0 mEq/L	(2.5-7.5)
Creatinine	82 mEq/L	(60-110)
Sodium	142 mEq/L	(137-144)
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What is the most likely diagnosis?

Your Answer

- Pseudogout
- Psoriatic arthritis
- Reactive arthritis
- Rheumatoid arthritis - This is the correct answer ✔
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Rheumatoid arthritis is the correct option. Patients with rheumatoid arthritis often present with synovitis which may affect a variety of joints before developing the classic features of a symmetrical, inflammatory polyarthritis affecting the small joints of the hands and feet.

This patient has symptoms suggestive of peripheral synovitis, even though her signs are limited on the day of examination. The working diagnosis has to be rheumatoid arthritis, in view of the clinical history, duration and distribution of symptoms and signs, and the fact that she is strongly positive for rheumatoid factor.

Rheumatoid arthritis is a clinical diagnosis. The classic features are:

- Symmetrical inflammatory polyarthritis
- Arthritis affecting the small joints of the hands and feet.

The most commonly used classification criteria are the American College of Rheumatology criteria. These criteria do not perform well in early disease.

Diagnostic tests are:

- Rheumatoid factor: there are many false positive and negatives
- Anticyclic citrullinated peptide antibody (anti CCP antibody): more specific for rheumatoid arthritis
- Antinuclear antibody: present in 20-30% of patients with rheumatoid arthritis.

Pseudogout is caused by deposition of calcium pyrophosphate dihydrate (CPPD) crystals, and can present as an acute monoarthritis. It commonly affects older individuals, over 70-years-old, or those with pre-existing osteoarthritis. Attacks of pseudogout begin over a period of a few hours and usually subside after two weeks.

Although knees are the most frequently involved joint in pseudogout, the age of this patient and length of symptoms make the diagnosis of pseudogout very unlikely.

Lower limb oligoarthritis is one of the manifestations of psoriatic arthritis. However the absence of a family history of psoriasis or any psoriasis on examination makes this diagnosis unlikely.

Reactive arthritis is incorrect since the absence of any preceding infection and symmetry of her symptoms and signs makes the diagnosis of reactive arthritis unlikely.

This patient does not have other features of systemic lupus erythematosus which one may expect. She only has a low titre of antinuclear antibody which makes the diagnosis of systemic lupus erythematosus unlikely, although it is important to note ANA is not specific for systemic lupus erythematosus.

The inflammatory arthritis of systemic lupus erythematosus typically affects the hands, wrists and knees, with often little in the way of signs, but significant symptoms. Swelling is mainly soft tissue with small joint effusions. Large knee effusions are unusual.

Next

Question

An otherwise healthy middle-aged man with no prior medical history has had increasing back pain and right hip pain for the past 10 years. The pain is worse at the end of the day.

He has bony enlargement of the distal interphalangeal joints. A radiograph of the spine reveals the presence of prominent osteophytes involving the vertebral bodies. There is sclerosis with narrowing of the joint space at the right acetabulum seen on a radiograph of the pelvis.

Which of the following pathologic processes is most likely to be taking place in this patient?

(Please select 1 option)

- Gout
- Lyme disease
- Osteoarthritis
- Osteomyelitis
- Rheumatoid arthritis

Answer Question

Explanation

Degenerative osteoarthritis is a common and progressive condition that becomes more frequent and symptomatic with aging. There is erosion and loss of articular cartilage.

Rheumatoid arthritis typically involves small joints of the hands and feet most severely and there is a destructive pannus that leads to marked joint deformity.

A gouty arthritis is more likely to be accompanied by swelling and deformity with joint destruction. The pain is not related to usage.

Osteomyelitis represents an ongoing infection that produces marked bone deformity, not just joint narrowing.

Lyme disease produces a chronic arthritis but it is typically preceded by a deer tick bite with a skin lesion. It is much less common than osteoarthritis.

Question

An otherwise healthy middle-aged man with no prior medical history has had increasing back pain and right hip pain for the past 10 years. The pain is worse at the end of the day.

He has bony enlargement of the distal interphalangeal joints. A radiograph of the spine reveals the presence of prominent osteophytes involving the vertebral bodies. There is sclerosis with narrowing of the joint space at the right acetabulum seen on a radiograph of the pelvis.

Which of the following pathologic processes is most likely to be taking place in this patient?

Your Answer

- Gout
- Lyme disease
- Osteoarthritis - This is the correct answer ✔
- Osteomyelitis

Next

Question

A 29-year-old man presents with a painful swollen right knee one month after an episode of gastroenteritis. There is no personal or family history of chronic skin diseases and he drinks alcohol occasionally.

On examination there is a right knee effusion, and the knee aspirate shows plenty of leucocytes, no crystals, and no organisms on Gram stain or culture.

What is the next step in his management?

(Please select 1 option)

- Commence disease modifying antirheumatic drug (DMARD)
- Intra-articular corticosteroids
- Oral antibiotics for five days
- Oral NSAIDs

Answer Question

Question

A 29-year-old man presents with a painful swollen right knee one month after an episode of gastroenteritis. There is no personal or family history of chronic skin diseases and he drinks alcohol occasionally.

On examination there is a right knee effusion, and the knee aspirate shows plenty of leucocytes, no crystals, and no organisms on Gram stain or culture.

What is the next step in his management?

Your Answer

- Commence disease modifying antirheumatic drug (DMARD)
- Intra-articular corticosteroids
- Oral antibiotics for five days
- Oral antibiotics for six weeks
- ✓ Oral NSAIDs - Correct ✔

Rate this question



Next

Correct

Explanation

Reactive arthritis (previously known as Reiter's syndrome) is the classic triad of conjunctivitis, urethritis and arthritis which occurs one to three months after an initiating infection.

It commonly occurs following:

- Urethritis (*C. trachomatis*)
- Diarrhoea (*C. jejuni, Salmonella* species), or
- Upper respiratory tract infections (β-haemolytic *Streptococcus*).

Dermatological manifestations are common, including keratoderma blennorhagicum, circinate balanitis, nail changes and oral lesions. It is more common in men, and the pathophysiology is not yet fully understood.

In the acute phase, affected joints should be rested and effusions aspirated. Non-steroidal anti-inflammatory agents are first line treatment. Corticosteroids can be given either intra-articular or systemic, particular in patients who are unresponsive to NSAIDs or who develop adverse effects.

Antibiotics do not change the course of reactive arthritis, even when an infective cause is identified. However, some studies show that they may help to reduce the length of arthritis, particularly if *Chlamydia* is the triggering infection.

Evidence for the use of disease-modifying anti-rheumatic drugs in reactive arthritis is limited. Sulfasalazine can be beneficial in resistant disease, and TNF alpha-blockers can be used in aggressive disease.

Typically reactive arthritis is self-limiting with resolution of symptoms within three to 12 months. However, 15% of patients develop a long term arthritis, enthesitis or spondylitis. There is a high incidence of recurrence, especially in patients who are HLA-B27 positive (triggered by infection or stress).

Reference:

1. Parker CT, Thomas D. Reiter's syndrome and reactive arthritis. *J Am Osteopath Assoc.* 2000;100:101-4.
2. Wu IB, Schwartz RA. Reiter's syndrome: the classic triad and more. *J Am Acad Dermatol.* 2008;59:113-21.

Next

Question

An 84-year-old man presents with right upper arm pain which he has had for the last few months. The pain is worsening progressively, and wakes him up at night.

He is known to have Paget's disease involving lumbar spine and pelvis, and is on oral bisphosphonates for this. There is no history of injury.

On examination the shoulder movements are free, and normal.

What is the most likely cause of his arm pain?

(Please select 1 option)

- Fracture
- Osteoarthritis
- Osteonecrosis
- Osteosarcoma
- Paget's disease

Answer Question

Explanation

Osteosarcoma is the most likely cause of his arm pain.

Osteosarcoma occurs in 1% of patients with Paget's disease, and accounts for 30% of cases of late onset osteosarcoma.

Although Paget's disease is associated with pathological fracture at the affected site, this man is not known to have Paget's disease at the humerus - which is an uncommon site for Paget's disease anyway; and there is no history of injury.

Similarly, the speed of progression of symptoms, presence of night pain and normal joint movements precludes the diagnosis of osteoarthritis.

Osteonecrosis has been associated with intravenous bisphosphonates (for example, zoledronic acid), and although rare, occurs in cancer patients who may be treated with large doses of corticosteroids, or who are known to have bone metastases.

Question

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On examination the shoulder movements are free, and normal.

What is the most likely cause of his arm pain?

Your Answer

- Fracture
- Osteoarthritis
- Osteonecrosis
- Osteosarcoma - This is the correct answer ✔

Next

Question

A 75-year-old woman with polymyalgia rheumatica (PMR) presents with a two week history of sudden onset right temporal headache, pain whilst brushing her hair. There are no visual symptoms. She is currently on prednisolone 8 mg/day.

On examination, there is tenderness overlying the right temporal artery.

Recent blood tests show:

Haemoglobin	111 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	76 mm/hr	(0-30)
CRP	93 mg/L	(<10)
Urea, electrolytes and creatinine	Normal	

What is the next step in her management?

(Please select 1 option)

- Admit for intravenous methyl prednisolone
- Arrange temporal artery biopsy
- Increase prednisolone to 15 mg/day
- Increase prednisolone to 40 mg/day
- Increase prednisolone to 40 mg/day, and arrange a temporal artery biopsy

Answer Question

Haemoglobin	111 g/L	(115-165)
WBC	7.8 $\times 10^9$/L	(4-11)
Neutrophils	70%	(40-75)
Platelet	270 $\times 10^9$/L	(150-400)
ESR	76 mm/hr	(0-30)
CRP	93 mg/L	(<10)
Urea, electrolytes and creatinine	Normal	

What is the next step in her management?

Your Answer

- Admit for intravenous methyl prednisolone
- Arrange temporal artery biopsy
- Increase prednisolone to 15 mg/day
- Increase prednisolone to 40 mg/day
- ✓ Increase prednisolone to 40 mg/day, and arrange a temporal artery biopsy - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

These symptoms and investigation findings are typical of giant cell arteritis (GCA).

GCA affects large and medium sized arteries, with a predilection for the external carotid, ciliary and retinal arteries. Endovascular damage and cytokine-mediated inflammation causes local ischaemia. There is considerable overlap with polymyalgia rheumatica, and symptoms of both should be sought. 20% of patients develop loss of vision, which can be prevented with timely recognition and treatment. Visual loss typically occurs early in the course of disease and, once established, rarely improves. The classically described jaw claudication occurs in a minority of cases, but does indicate a high risk of ischaemic complications.

The typical presentation of GCA is a temporal headache, with myalgia, malaise and fever. ESR and CRP are usually raised.

As soon as the diagnosis is suspected, high dose corticosteroids should be given. Current BSR guidelines recommend:

1. Uncomplicated GCA (no jaw or tongue claudication, or visual symptoms)
 - prednisolone 40-60 mg daily
2. Complicated GCA:
 - Evolving visual loss or history of amaurosis fugax: IV methylprednisolone 500mg-1g daily for three days, followed by oral corticosteroids
 - Established visual loss: at least 60 mg prednisolone daily

Bone protection and proton-pump inhibitors should be co-prescribed.

It is important to note that the pathological findings of giant cell arteritis persist for one to two weeks following initiation of corticosteroid, and therefore treatment should not be delayed to obtain a biopsy.

Aspirin 75 mg once daily is sometimes given as an adjunct but higher doses are not recommended.

Symptoms usually resolve quickly, often with two or three days. Once they and laboratory abnormalities resolve, the dose of corticosteroid can be reduced and usually stopped within two years. The patient should be monitored for recurrence throughout the taper: ESR every 4 weeks for 2-3 months, then every 8-12 weeks until 12-18 m after cessation of therapy.

Giant cell arteritis is a medical emergency and should be treated without delay. It is not acceptable to give no treatment.

Reference:

1. Dasgupta B, et al. BSR and BHPR guidelines for the management of giant cell arteritis. *Rheumatology (Oxford)*. 2010;49:1594-7.

Next

Question

A 52-year-old woman presents with a two week history of malaise and lower limb joint pain, associated with a vasculitic rash over her shins, thighs and buttocks.
Investigations revealed:

Haemoglobin	98 g/L	(115-165)
Platelet count	275 $\times 10^9$/L	(150-400)
Serum creatinine concentration	452 µmol/L	(60-110)
Antinuclear antibodies	Negative	
Antineutrophil cytoplasmic antibodies	Negative	
Antiglomerular basement membrane antibodies	Negative	
Dipstix urinalysis	Blood+++, protein +	

What is the most likely diagnosis?

(Please select 1 option)

- Amyloidosis
- Haemolytic uraemic syndrome (HUS)
- Henoch-Schönlein purpura
- Membranous nephropathy
- Myeloma

Answer Question

Haemoglobin	98 g/L	(115-165)
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- Haemolytic uraemic syndrome (HUS)
- Henoch-Schönlein purpura - This is the correct answer ✔
- Membranous nephropathy
- ✓ Myeloma - Incorrect answer selected ✖

Rate this question

Next

Explanation

The distribution of the rash together with lower limb joint pains and renal involvement are most suggestive of Henoch-Schönlein purpura (HSP).

HSP is a small vessel vasculitis mediated by IgA-immune complex deposition. It is characterised by the tetrad of:

- purpura
- abdominal pain
- arthritis, and
- renal involvement (haematuria and proteinuria).

The diagnosis can be easily missed, and a high degree of suspicion is required. Skin biopsy and immunofluorescence demonstrate leukocytoclastic vasculitis with IgA deposition, which is pathognomonic for HSP.

90% of cases of HSP occur in children aged 2-10 years but can occur in any age group. It is typically commoner in males, and may follow an infectious agent. An important risk factor for the development of HSP in adults is thought to be chronic alcohol intake. A variety of disorders have been associated with HSP in adults, including *Helicobacter pylori*, hepatitis B and malignancy. In some cases, overlap with polyangiitis or polyarteritis-like disease is seen.

Management of HSP in adults often involves the use of immunomodulatory or immune-suppressive regiments (in contrast to children where the majority of cases resolve spontaneously). There is often a more complicated course in adults, and 50% of patients who present with renal involvement develop renal insufficiency. In addition to renal disease, cardiac, pulmonary, ocular, gastrointestinal and neurological complications have been described.

Amyloidosis is a clinical disorder caused by extracellular and or intracellular deposition of insoluble abnormal amyloid fibrils, which alter normal tissue function. It is classified chemically and is associated with a number of different conditions. There is typically a combination of symptoms which affect more than one system, including massive proteinuria, peripheral neuropathy, hepatomegaly and heart failure. A vasculitic rash affecting the lower limbs is not typical.

Haemolytic ueaemic syndrome (HUS) is a triad of microangiopathic haemolytic anaemia, thrombocytopenia and acute renal failure. It is most commonly associated with *Escherichia coli* O157:H7. The classical presentation is profuse diarrhoea with blood, and the absence of this in the above scenario makes HUS unlikely.

Membranous nephropathy is a histological diagnosis and usually presents with proteinuria without haematuria. 85% of cases are idiopathic, and the remainder are secondary to autoimmune conditions (SLE), infection (hepatitis B), drugs (captopril, NSAIDs) and malignancy.

Next

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In myeloma there is malignant proliferation of plasma cells, which produces marrow infiltration and overproduction of a monoclonal antibody detectable in serum and/or urine (Bence Jones protein). Common presenting features include pathological fractures, anaemia, anorexia, bruising and infection. Myeloma can rarely cause vasculitis which is antineutrophil cytoplasmic antibody (ANCA) negative but this is rare and less likely than HSP in this scenario.

Reference:

1. Jithpratuck W, et al. The clinical implications of adult-onset henoch-schonelin purpura. *Clin Mol Allergy.* 2011;9:9.
2. Schaier M, et al. Henoch-Schönlein purpura in adults is not uncommon in elderly patients with an adverse prognosis. *Clin Nephrol.* 2011;76:49-56.

Question

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Serum creatinine concentration	452 µmol/L	(60-110)
Antinuclear antibodies	Negative	

Next

Question

A 65-year-old woman is referred by her GP for a six month history of acute onset, progressively worsening shoulder pain, occurring bilaterally and associated with morning stiffness lasting approximately one hour.

The GP's letter states that basic bloods demonstrated:

Westergren ESR	55 mm/Hr	0 - 30
CRP	1mg/L	<10
Rheumatoid factor titre	1:80	>1:40

Which one of the following increases the probability of a diagnosis other than polymyalgia rheumatica?

(Please select 1 option)

- Advanced age
- Duration of morning stiffness
- ESR 55 mm/Hr
- Rheumatoid factor titre 1:80 mg/L
- Symmetry of shoulder pain

Answer Question

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Your Answer

- Advanced age
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- Rheumatoid factor titre 1:80 mg/L - This is the correct answer ✔
- ✓ Symmetry of shoulder pain - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Polymyalgia rheumatica is an inflammatory disease which typically presents with pain and stiffness of the the shoulder and pelvic girdle muscles (classically symmetrical). It can have either an acute or subacute onset and is associated with a systemic inflammatory response and therefore constitutional symptoms such as fever, anorexia, weight loss and malaise.

The course of the disease is unpredictable, and 30% of patients also have giant cell arteritis. The cause is unknown, although studies showing a cyclical incidence have led to theories regarding an infectious trigger. Muscle weakness is not a feature of PMR, but this can be difficult to assess in the presence of pain.

Investigations typically reveal:

- Normochromic / normocytic anaemia
- Raised erythrocyte sedimentation rate (ESR) often > 50 mm/hr (although this may be normal)
- Raised C reactive protein (CRP).

PMR is not usually associated with an elevated rheumatoid factor, but it is important to note that this is present in 1-2% of the normal population. It is not specific for rheumatoid arthritis.

Features of giant cell arteritis should be sought:

- Headache
- Visual disturbance
- Jaw claudication
- Thickened and tender temporal arteries.

Diagnosis of PMR can prove difficult, and other inflammatory conditions should be excluded. Patients are usually over 60 years, and PMR is very rarely seen in the under 50s.

Response to a moderate dose of steroids can be useful. The maximum dose of prednisolone should not exceed 20 mg once daily. Patients should report 70% improvement in symptoms within three to four weeks, and inflammatory markers should have normalised by this point.

In general, non-steroidal anti-inflammatories have little use and are associated with significant morbidity. There is little evidence for the use of steroid-sparing agents.

Question

Next

Question

A 62-year-old woman presents with a one year history of worsening bilateral, anterior knee pain. The pain is increased by climbing stairs. Both knees are stiff for five to 10 minutes in morning. There is no history of knee swelling. The pain is partially controlled by paracetamol 1 g up to four times a day. She has a history of diabetes, and angina.

On examination, she is overweight. There is crepitus and during active and passive movement of both knees. There is no knee effusion. A recent knee x ray shows joint space narrowing in the medial tibio-femoral joint.

What is the next step in her management?

(Please select 1 option)

- Acupuncture
- Oral NSAIDs
- Rest
- Topical NSAIDs
- Transcutaneous electrical nerve stimulation (TENS)

Answer Question

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- Rest
- Topical NSAIDs - This is the correct answer ✔
- ✓ Transcutaneous electrical nerve stimulation (TENS) - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

This lady has osteoarthritis.

NICE guidelines recommend formulating individualised management plans for patients with osteoarthritis.

Behavioural change, such as exercise, weight loss and suitable footwear should be encouraged. Comorbidities which compound the effect of osteoarthritis symptoms should be identified and their treatment optimised.

Paracetamol and/or topical NSAIDs (for knee or hand OA) should be offered before considering oral NSAIDs.

If symptoms are not controlled with the above strategies, oral NSAIDs or COX-2 inhibitors (but not etoricoxib) can be used. A proton pump inhibitor should be co-prescribed. The lowest effective dose should be prescribed for the shortest period possible. If the patient is already taking low-dose aspirin, an alternative analgesic should be considered.

Treatments which are not recommended include rubefacients, intra-articular hyaluronan, electro-acupuncture and chondroitin or glucosamine products.

Adjuvants which can be used include opioid analgesics, topical capsaicin and intra-articular corticosteroids.

Application of heat or cold packs, or TENS, can be considered if other strategies are ineffective. Manipulation and stretching can be helpful, particularly for hip osteoarthritis. Bracing/joint supports can be used for patients with biomechanical joint pain or instability.

Patients should be referred for joint surgery if they have already been offered all of the core treatments or if they have refractory joint symptoms which have a substantial impact on their quality of life.

If there is a clear history of mechanical locking, referral for arthroscopic lavage and debridement should be considered.

Reference:

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-26.
2. NICE. Osteoarthritis (CG177).

Question

Next

Question

A 74-year-old man has extensive Paget's disease involving the lumbar spine and pelvis identified on an IVU for suspected renal stones. He is asymptomatic from the pagetic lesions.
Blood tests show raised alkaline phosphatase and normal calcium.
What is the next step in his management?

(Please select 1 option)

- Calcitonin
- No treatment necessary
- Oral bisphosphonates
- Parathyroid hormone
- Radiotherapy

Answer Question

Siris ES. Paget's disease of bone. *J Bone Miner Res.* 1998;13:1061-5.

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Rate this question



Next

Incorrect

Explanation

Paget's disease of bone is a localised disorder of bone remodelling.

There are increased numbers of giant osteoclasts which increase bone resorption with subsequent increase in new bone formation and altered bone architecture. The structure of the new bone is disorganised and mechanically weaker and therefore liable to pathological fracture and deformity.

It can affect any bone, but is commonest in the axial skeleton, long bones and skull. The hands and feet are rarely affected. Both genetic and environmental factors are implicated, and it has been suggested paramyxovirus is involved.

The majority of patients affected are over the age of 55, and men are more commonly affected. The United Kingdom has the highest prevalence of Paget's disease in the world.

The signs and symptoms of Paget's are varied, depending on the location of involved sites and the degree of increased bone turnover. It is commonly asymptomatic and is discovered by an elevated serum alklaline phosphatase or typical radiographic findings. When symptoms do occur, the most common are bone pain and/or deformity.

Deafness or tinnitus is not uncommon, due to compression of cranial nerve VIII. The most concerning complication is the development of osteosarcoma, which carries a poor prognosis.

Treatment is indicated for bone pain, nerve compression, disease impinging on joints and immobilisation hypercalcaemia. In this case, this gentleman is asymptomatic and he should just be monitored.

When indicated, management concentrates on control of pain and the reduction of complications. In addition to analgesia, bisphosphonates are the mainstay of treatment. These reduce bone turnover, improve pain, promote healing of osteolytic lesions and restore normal bone histology. Serial monitoring of alkaline phosphatase can help to monitor treatment.

Calcitonin was used for the treatment of Paget's disease but has been superseded by bisphosphonates which are more effective.

There is no role for radiotherapy, or parathyroid hormones in the treatment of Paget's disease.

Reference:

Siris ES. Paget's disease of bone. *J Bone Miner Res*. 1998;13:1061-5.

Question

Next

Question

A 25-year-old student presents to the Emergency department with a systemic illness.

She appears unwell, with a swinging fever, 3 kg weight loss over two months, generalised myalgia, polyarthralgia affecting wrists, knees, ankles, elbows and metacarpophalangeal joints, and a sore throat.

Investigations demonstrate normochromic normocytic anaemia 98 g/L, ESR 81 mm in the first hour, CRP 31 g/L, serum ferritin 1756 mg/dL, RF negative, ANA negative, ENA negative, ASO titre <200 IU.

What is the most likely diagnosis?

(Please select 1 option)

- Adult onset Still's disease (AOSD)
- Polymyositis
- Rheumatic fever
- Seronegative rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

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- Seronegative rheumatoid arthritis
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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

The most likely diagnosis in this case is adult onset Still's disease. This is a rare systemic inflammatory disease characterised by high spiking fever, evanescent salmon pink rash, polyarthralgia, lymphadenopathy, hepatosplenomegaly and neutrophilic leucocytosis. There is often an accompanying sore throat and myalgia.

The fever occurs once or twice daily and is described as quotidian or diquotidian returning to 37°C or below between episodes.

The characteristic evanescent salmon-coloured non-pruritic macular or macular-papular rash occurs in approximately 90% of patients and is often seen only when the patient is febrile and is easily missed.

Aetiology is not clearly understood, but it is likely triggered by an infectious agent in a genetically predisposed host.

Diagnosis is clinical, and should include exclusion of infectious disease, neoplasms and other autoimmune disease. Laboratory tests reflect systemic inflammation, with a high ESR, leucocytosis and raised acute phase reactants (in particular ferritin). Rheumatoid factor and antinuclear antibody are typically negative. Liver function tests can be abnormal. High serum ferritin, with low glycosylated fraction, are characteristic and can be used as disease activity markers. Interleukin (IL)-1, IL-6, IL-18, macrophage colony stimulating factor, interferon gamma and TNF-alpha are all elevated.

The clinical course can be divided into:

- Self-limited or monophasic intermittent
- Polycyclic systemic, and
- Chronic articular pattern.

Prognosis tends to be better when systemic symptoms predominate.

Therapy includes non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, disease-modifying anti-rheumatic drugs and biological agents. Intravenous immunoglobulin may have a role.

Polymyositis is an inflammatory condition which typically presents with relatively painless, progressive, proximal muscle weakness.

Rheumatic fever develops in relation to group A streptococcal infection. It presents with chorea, carditis, subcutaneous nodules, erythema marginatum and migratory polyarthritis.

Systemic upset to the extent described in the above case is unusual with rheumatoid arthritis. One would expect ANA to be positive in systemic lupus erythematosus.

Reference:

Next

Question

A 50-year-old man presented with a six week history of general malaise and a two day history of a right foot drop, a left ulnar nerve palsy and a widespread purpuric rash.
He complained of arthralgia but had no clinical evidence of inflammatory joint disease.
Investigations revealed:

ESR	100 mm/hr	(0-20)
ANCA	Negative	
ANA	Negative	
Rheumatoid factor	Strongly positive	
C3	0.8 g/L	(0.75-1.6)
C4	0.02 g/L	(0.14-0.5)
Urine dipstick	Blood ++, No protein	

An echocardiogram was normal and two sets of blood cultures were negative.
What is the most likely diagnosis?

(Please select 1 option)

- ANA negative SLE
- Cryoglobulinaemia
- Infective endocarditis
- Polyarteritis nodosa
- Rheumatoid arthritis

Answer Question

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- ✓ Rheumatoid arthritis - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The history is strongly suggestive of systemic vasculitis with mononeuritis multiplex, purpuric rash and haematuria.

It is important to exclude conditions which can mimic vasculitis such as infective endocarditis. The normal echocardiogram and negative blood cultures make this unlikely.

Whilst polyarteritis nodosa can present with exactly this clinical picture, the marked consumption of C4 together with a strongly positive rheumatoid factor strongly suggests cryoglobulinaemia as the underlying cause.

Cryoglobulins are immunoglobulins which precipitate in the cold. They can be

- Type I (monoclonal)
- Type II (mixed monoclonal and polyclonal) or
- Type III (polyclonal).

Type I cryoglobulinaemia is associated with haematological diseases such as myeloma and Waldenstrom's.

Type II and Type III cryoglobulinaemia can be associated with many connective tissue disorders, chronic infections and most importantly, hepatitis C infection which should always be excluded.

Treatment of cryoglobulinaemia would include plasmaphoresis, high dose steroids and cyclophosphamide.

The following conditions may be associated with a positive rheumatoid factor:

- Rheumatoid arthritis - 26 to 90%
- Sjögren's syndrome - 75 to 95%
- Mixed connective tissue disease - 50 to 60%
- Mixed cryoglobulinemia (types II and III) - 40 to 100%
- Systemic lupus erythematosus - 15 to 35%
- Polymyositis/dermatomyositis - 5 to 10%

Question

Next

Question

A 40-year old lady presents to clinic complaining of an 18 month history of dorsoradial wrist pain. She is a keen tennis player.

On examination she has tenderness localised to the dorsoradial aspect of the wrist and passive motion of the thumb causes crepitus in the same region. Finkelstein's test is positive.

Which of the following is the likely diagnosis?

(Please select 1 option)

- Carpal tunnel syndrome
- De Quervain's tenosynovitis
- Golfer's elbow
- Tennis elbow
- Ulnar tunnel syndrome

Answer Question

Incorrect

Explanation

De Quervain's tenosynovitis is thought to be related to overuse, and is common in golfers and racquet sport players.

Most affected are females 30-50-years-old.

Finkelstein's test (flexion of the thumb into the palm, making a fist over the thumb and ulnar deviation of the wrist causes pain in the first dorsal extensor compartment) is diagnostic.

Question

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Next

Question

A 45-year-old man presents with a six month history of gradually worsening right knee pain, swelling, and restricted movements. There is no history of injury, or recent infections. He does not take any long term medications, and there is no significant past or family history of note.

On examination, the knee is grossly swollen, warm, non-tender, and there is restricted flexion and extension. The synovial fluid aspirated is brown stained.

What is the diagnosis?

(Please select 1 option)

- Acute CPP crystal arthritis (pseudogout)
- Gout
- Meniscal tear
- Pigmented villonodular synovitis
- Reactive arthritis

Answer Question

3. Singh S, Chowdhury V. Pigmented villonodular synovitis of the knee : A case report. *Indian J Radiol Imaging* 2005;15:455-8.
4. Tyler WK, et al.Pigmented villonodular synovitis. *J Am Acad Orthop Surg.* 2006;14:376-85.

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- Gout
- Meniscal tear
- Pigmented villonodular synovitis - This is the correct answer ✔
- ✓ Reactive arthritis - Incorrect answer selected ✖

Rate this question

Next

Explanation

The following are differential diagnoses of arthropathies associated with iron deposition in the joints:

- Haemophilia
- Haemosiderosis from recurrent haemarthrosis
- Haemochromatosis, and
- Pigmented villonodular synovitis (PVNS).

They can therefore lead to brown-stained synovial fluid.

Calcium pyrophosphate crystal arthritis (pseudogout), typically occurs in elderly patients who have a history of osteoarthritis. It presents with acute onset of joint swelling and pain.

This patient *also* has no risk factors for gout (young age, no history of excessive alcohol intake), meniscal tears (no injury), or reactive arthritis (no preceding infections).

PVNS is a rare proliferative disorder that affects the synovium in young and middle aged adults. Current thinking is that it is an inflammatory process, although some believe it is a benign neoplasm.

Monoarticular involvement, the most common manifestation, occurs in two forms: localised and diffuse. The localised form is characterised by focal synovial involvement, with either nodular or pedunculated masses. The diffuse form, in contrast, affects virtually the entire synovium. Although any joint can be involved, the knee is the most common.

Symptoms are usually non-specific (pain, warmth, swelling). On examination there is tenderness, effusion and restricted joint mobility. Radiographs are often unremarkable, but MRI can show intra-articular masses with signal dropout on T2 weighted images. Joint aspiration yields xanthochromic or serosanguineous fluid.

The optimal treatment of PVNS is surgery. The local recurrence after marginal excision for localised disease is low. However, recurrence after open synovectomy for diffuse PVNS is relatively high (up to 46%, higher with arthroscopic resection). Synovectomy, in addition to disease control, can prevent secondary osteoarthritis. Complications include arthrofibrosis and wound breakdown.

Intra-articular radioactive isotopes or external beam radiotherapy may be benefical anjuvant therapy for extensive diffuse and recurrent PVNS.

In some patients total joint arthroscopy may be the only effective treatment.

PVNS can be aggressive, with marked extra-articular extension.

Reference:

Next

Question

A 51-year-old man presents with increasing lethargy over the past few months. He has had to give up his job as a storeman, and it now takes him 15 minutes to get up one flight of stairs and he has difficulty getting up out of a chair.

On examination his BP is 135/82 mmHg, pulse is 85 and regular. His heart sounds are normal and his chest is clear. He has clear proximal muscle weakness, with sparing of distal muscle power. His CK is elevated at 1200.

Which of the following antibodies is most likely to be elevated?

(Please select 1 option)

- Anti-Jo antibody
- Anti-La antibody
- Anti-signal recognition particle antibody
- Anti-Rho antibody
- Anti-smooth muscle antibody

Answer Question

Incorrect

Explanation

The proximal myopathy and raised creatine kinase (CK) in the absence of a violaceous rash suggests that polymyositis is the most likely diagnosis.

Around 20% of patients with polymyositis have anti-Jo 1 antibodies. Corticosteroids are the mainstay of immunosuppression. Patients with anti-Jo 1 antibodies are at increased risk of lung fibrosis, and therefore immunosuppression is usually continued long term. A steroid sparing agent, such as azathioprine, may well be added to reduce the corticosteroid dose.
There are a variety of other autoantibodies present in polymyositis, including anti-signal recognition particle antibody, which can be associated with different forms of the disease.

Anti-Rho and -La antibodies are seen in systemic lupus erythematosus (SLE) and are associated with the development of neonatal lupus.

Antismooth muscle antibodies are classically associated with autoimmune hepatitis.

Question

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Your Answer

- Anti-Jo antibody - This is the correct answer ✔
- Anti-La antibody
- Anti-signal recognition particle antibody

Next

Question

All of the below are thought to predispose to the development of systemic lupus erythematosus (SLE), except which?

(Please select 1 option)

- Exogenous oestrogen administration
- HLA-DR3
- Congenital deficiency of C2
- HLA-B8
- Breastfeeding

Answer Question

overexpression of surface nuclear ribonucleoproteins and cytokine secretion with subsequent increased autoantibody production.
Vitamin D deficiency may also result in increased autoantibody production.

Reference & Further Reading:
http://emedicine.medscape.com/article/332244-overview#a4

Question

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Your Answer

- Exogenous oestrogen administration
- HLA-DR3
- Congenital deficiency of C2
- HLA-B8
- ✓ Breastfeeding - Correct ✔

Rate this question



Next

Correct

Explanation

The specific cause of SLE is unknown, but multiple genetic predispositions and environmental factors have been identified. The underlying mechanism is thought to be associated with a deficiency in immune clearance, which results in autoimmunity.

Patients with HLA-DR3, HLA-A1, and HLA-B8 are throught to have an innate susceptibility, as are those with abnormal complement levels (especially congenital deficiencies of C4 or C2) or specific immunoregulatory genotypes (mainly related to B-cell receptor pathway signalling). UV exposure, microbial response and drugs can then interact with this innate susceptibility to result in the development of SLE.

There is an increased risk in relatives of those affected, with 40% concordance in monozygotic twins.

The role of infection in the aetiology of SLE has been extensively investigated, and it has been found that patients have higher antibody titres against EBV than the general population which is postulated to result in a T-cell abnormality with causes failure of the normal regulation of the B-cell response. In addition, chronic infections can result in anti-DNA antibodies and bacterial infections can precipitate a flare of SLE symptoms.

Environmental factors are more complex, but some associations have been found:
Silica dust, exogenous oestrogen administration and cigarette smoking may increase the risk of developing SLE.
Breastfeeding seems to decrease the risk of developing SLE.
UV light is a clear precipitant of skin disease, by stimulating keratinocytes resulting in overexpression of surface nuclear ribonucleoproteins and cytokine secretion with subsequent increased autoantibody production.
Vitamin D deficiency may also result in increased autoantibody production.

Reference & Further Reading:
http://emedicine.medscape.com/article/332244-overview#a4

Question

All of the below are thought to predispose to the development of systemic lupus erythematosus (SLE), except which?

Next

Question

A 34-year-old nulliparous woman attends clinic because she wants to start a family as soon as possible. She is currently receiving weekly methotrexate for rheumatoid arthritis, but her rheumatologist has suggested that she would be able to stop taking it soon.

Assuming that there are no other contraindications to her becoming pregnant, how long should she wait before stopping the oral contraceptive pill (OCP) and trying to conceive in relation to her discontinuing methotrexate treatment?

(Please select 1 option)

- She can stop the OCP at the same time as she stops methotrexate
- She should continue the OCP for at least two weeks after stopping methotrexate
- She should continue the OCP for at least one month after stopping methotrexate
- She should continue the OCP for at least three months after stopping methotrexate
- She should continue the OCP for at least one year after stopping methotrexate

Answer Question

Incorrect

Explanation

Methotrexate is teratogenic and, according to the British National Formulary (BNF), the manufacturers advise effective contraception during, and for at least three months, after stopping methotrexate (both males and females).

Fertility may be reduced during treatment, but this usually reverses upon stopping.

The National Patient Safety Agency (NPSA) state on their patient held record that: 'It is recommended that you wait three months after finishing your treatment, before trying to become pregnant'. This advice should be given to both men and women - men should also not try to father a child whilst on methotrexate.

Question

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- She should continue the OCP for at least two weeks after stopping methotrexate
- She should continue the OCP for at least one month after stopping methotrexate
- She should continue the OCP for at least three months after stopping methotrexate - This is the correct answer ✔

Next

Question

A 40-year-old man presents with acute monoarthritis of the right knee.

Gout is confirmed following joint aspiration and examination of the fluid under polarised light microscopy. He underwent endoscopy three weeks earlier because of dyspepsia and this confirmed a duodenal ulcer.

Which of the following would be the best initial treatment for him?

(Please select 1 option)

- Allopurinol
- Indomethacin alone
- Indomethacin and lansoprazole
- Indomethacin and misoprostol
- Intra-articular corticosteroid injection

Answer Question

Rheumatology guideline for the management of gout. *Rheumatology (Oxford)*. 2007;46:1372-4.

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Your Answer

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- Indomethacin alone
- Indomethacin and lansoprazole
- Indomethacin and misoprostol
- ✓ Intra-articular corticosteroid injection - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

The principles of treating an acute episode of gout are:

- Commence anti-inflammatory medication immediately, and continue for two weeks - non-steroidal anti-inflammatory drugs (NSAIDs) are first line in conjunction with gastro-protective medication where indicated; colchicine is an alternative but is slower to work and can be associated with significant diarrhoea
- Rest the affected joints
- Allopurinol should not be started during an acute attack but in patients already established on allopurinol it should be continued
- If diuretics are being used to treat hypertension an alternative antihypertensive should be considered, but they should not be stopped in the presence of heart failure
- Corticosteroids are highly effective, and can be used where NSAIDs are not tolerated, or in refractory disease (intra-articular, oral, intramuscular, intravenous).

In this scenario, NSAIDs are contraindicated due to the presence of active gastrointestinal ulceration. Even with coadminsitration of a gastroprotective mediation (for example, lansoprazole or misoprostal) the risk of haemorrhage or perforation is too high to use NSAIDs in this case.

Initiation of allopurinol can prolong an acute attack of gout due to shifts in uric acid levels. It is therefore recommended only one to two weeks after the resolution of symptoms, usually with colchicine cover.

Intra-articular corticosteroids is therefore the most appropriate answer in this case. If available, colchicine would be a reasonable option but it can be associated with significant gastrointestinal toxicity. The systemic absorption from intra-articular corticosteroids is extremely low, and as you are bypassing the intestine they do not carry risk of peptic ulceration associated with oral corticosteroid use.

Potential local side effects of corticosteroid injections include increased pain for the first couple of days, septic arthritis, subcutaneous atrophy (causing skin dimpling), skin depigmentation, accidental nerve injury and tendon rupture.

Reference:

Jordan KM, et al. British Society for Rheumatology and British Health Professionals in Rheumatology guideline for the management of gout. *Rheumatology (Oxford)*. 2007;46:1372-4

Next

A 68-year-old man presents with a six month history of progressively worsening lethargy and thigh pain at rest. He complains that his legs feel unduly heavy, and he is persistently tripping over his right foot. He has little interest in food, to which he attributes his 8 kg weight loss.

There is no other significant medical history. He tells you he occasionally has intercourse with other men, but asks for your discretion around his wife.

Clinical examination demonstrated; pulse 88 bpm (regular), BP 155/100 mmHg, normal heart sounds and chest sounds. He has a tender right testicle, a reticular violaceous rash to his lower legs, and right foot dorsiflexion was graded at 0/5.

Basic bloods revealed ;

Hb	135 g/L	(130-180)
MCV	96 fL	(80-96)
WCC	8 $\times 10^9$/L	(4-11)
ALT	155 IU/L	(5-35)
AST	110 IU/L	(1-31)
Creatinine	157 µmol/L	(60-110)
Urea	19 mmol/L	(2.5-7.5)

Renal arteriography subsequently demonstrated multiple microaneurysms of larger vessels with constriction of the smaller penetrating arteries.

Which of the following is most consistent with this diagnosis?

(Please select 1 option)

- Fibrinoid necrosis
- Granulomatous inflammation
- Involvement of medium sized veins
- p-ANCA positivity
- Predilection for lung involvement

Answer Question

WCC	8 $\times 10^9$/L	(4-11)
ALT	155 IU/L	(5-35)
AST	110 IU/L	(1-31)
Creatinine	157 µmol/L	(60-110)
Urea	19 mmol/L	(2.5-7.5)

Renal arteriography subsequently demonstrated multiple microaneurysms of larger vessels with constriction of the smaller penetrating arteries.

Which of the following is most consistent with this diagnosis?

Your Answer

- Fibrinoid necrosis - This is the correct answer ✔
- Granulomatous inflammation
- Involvement of medium sized veins
- p-ANCA positivity
- ✓ Predilection for lung involvement - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The important learning points for this question are:

- Presentation of polyarteritis nodosa (PAN)
- Familiarity with the American College of Rheumatology diagnostic criteria
- Classical renal arteriographic appearances in PAN.

Polyarteritis nodosa (PAN) is a necrotising vasculitis affecting small to medium sized muscular arteries.

This man presents with:

- Myalgia
- Weight loss
- Livedo reticularis
- Testicular pain
- Diastolic hypertension (>90 mmHg)
- Right common peroneal mononeuropathy, and
- Renal failure (urea >14.3 mmol/L, creatinine >132 µmol/L) with arteriographic abnormalities.

He is at risk of Hepatitis B (homosexual activity, liver transaminitis) a known pathogenic link.

He fulfils 9 of the 10 American College of Rheumatology criteria for the diagnosis of PAN in a patient with documented vasculitis (only three are required).

The final criterion is histological evidence of polymorphonuclear infiltrate and a homogenous eosinophilic (so called fibrinoid necrosis) appearance to the necrosed vessel walls.

Granulomatous inflammation does not occur.

The lungs are commonly spared.

Reference:

Lightfoot RW Jr, et al. The American College of Rheumatology 1990 criteria for the classification of polyarteritis nodosa. *Arthritis Rheum.* 1990;33:1088-93.

Next

Question

A 38-year-old publican with a two month history of bloody diarrhoea, abdominal pain, and weight loss presents with a three week history of painful and swollen left knee. There is no other significant past or family history.

Stool cultures done by her GP have been negative for *C. difficile* toxin, and have not grown any pathogenic organisms. On examination, the left knee is warm, tender, and there is a large effusion.

What is the most likely diagnosis?

(Please select 1 option)

- Carcinomatous arthropathy
- Gout
- Inflammatory arthritis associated with inflammatory bowel disease
- Reactive arthritis
- Psoriatic arthirtis

Answer Question

Explanation

This patient has chronic diarrhoea (more than two week duration), most likely to be due to inflammatory bowel disease (IBD).

IBD associates with asymmetric oligoarthritis. Knees and ankles are the most commonly affected joints.

The clinical course of peripheral joint (appendicular) inflammatory arthritis associated with IBD frequently follows the clinical course of gut disease. This form of enteropathic arthritis frequently remits after successful treatment of bowel disease.

IBD also associates with sacroiliitis (axial disease). There is no association between the clinical course of sacroiliitis and gut disease. It is worth bearing in mind that sacroiliitis may precede the onset of IBD by many years in some cases, and as outlined above may progress despite bowel resection.

Reactive arthritis is unlikely as the arthritis in reactive arthritis occurs a few weeks (4-6 weeks) after the resolution of infection. There is no risk factor of gout (age < 50 years, female gender, low alcohol intake), malignancy, and there is no personal or family history of psoriasis.

Question

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What is the most likely diagnosis?

Your Answer

- Carcinomatous arthropathy
- Gout
- Inflammatory arthritis associated with inflammatory bowel disease - This is the correct answer ✔

Next

A 65-year-old woman with chronic hepatitis C presents with a six week history of extensive non-blanching rash on her legs. She has also developed swelling and stiffness in the MCP and IP joints.

On examination, there is pitting oedema, her BP is 130/90 mm Hg, and urine dipstick shows 3+ proteins.

Recent blood tests are as follows:

Haemoglobin	131 g/L	(115-165)
WBC	8.2 $\times 10^9$/L	(4-11)
Neutrophils	5.1 $\times 10^9$/L	(1.5-7)
Platelets	280 $\times 10^9$/L	(150-400)
ESR	48 mm/hr	(0-30)
Bilirubin	27 µmol/L	(1-22)
Albumin	25 g/L	(37-49)
Alkaline phosphatase	160 U/L	(45-105)
Rheumatoid factor positive	(1:2048)	-
ALT	58 IU/L	
Urea, electrolytes and creatinine	Normal	

What is the diagnosis?

(Please select 1 option)

- Cryoglobulinaemia
- Hepato-renal syndrome
- Polyarteritis nodosa
- Rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

ESR	48 mm/hr	(0-30)
Bilirubin	27 µmol/L	(1-22)
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ALT	58 IU/L	
Urea, electrolytes and creatinine	Normal	

What is the diagnosis?

Your Answer

- Cryoglobulinaemia - This is the correct answer ✔
- Hepato-renal syndrome
- Polyarteritis nodosa
- Rheumatoid arthritis
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Mixed cryoglobulinaemia manifests as:

- Purpura
- Cutaneous ulcers
- Polyneuropathy, and
- Membranoproliferative glomerulonephritis.

Non-erosive polyarthralgia associates with hepatitis C.

Laboratory investigations show positive rheumatoid factor, low C4, active urine sediments, and type II or III serum cryoglobulins. There may be axonal polyneuropathy.

Active urinary sediment suggests the presence of membranoproliferative glomerulonephritis.

Polyarteritis nodosa associates with hepatitis B.

Question

A 65-year-old woman with chronic hepatitis C presents with a six week history of extensive non-blanching rash on her legs. She has also developed swelling and stiffness in the MCP and IP joints.

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Next

Question

A 45-year-old male attends for an insurance medical and is in good health.
Examination was normal but investigations reveal that he has a serum urate concentration of 0.55 mmol/L (0.25-0.45).
Which of the following is the most appropriate management for this patient?

(Please select 1 option)

- Lifestyle advice
- Start allopurinol
- Start colchicine
- Start diclofenac
- Start prednisolone

Answer Question

Incorrect

Explanation

The most appropriate treatment for this asymptomatic man with an isolated slightly elevated urate is lifestyle advice with an appropriately reduced purine diet, increased exercise and reduced alcohol consumption.

Question

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Which of the following is the most appropriate management for this patient?

Your Answer

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- Start allopurinol
- Start colchicine
- Start diclofenac
- ✓ Start prednisolone - Incorrect answer selected ✖

Finish

Question

A 54-year-old man presents with a six day history of sharp shooting pain radiating from his back to the lateral aspect of his leg. The pain is associated with pins and needles.

On examination, he has sensory loss on the lateral aspect of leg, dorsum of foot, and there is a partial foot drop.

Which lumbar spine nerve root is affected?

(Please select 1 option)

- L2
- L3
- L4
- L5
- S1

Answer Question

S2	Popliteal fossa	Many, in combination with other nerve roots - including knee flexors	Ankle (S1-2)
S3 - 5	Medial buttock and perianal skin in a concentric manner with S3 most lateral, and s5 closest to the anus	Bladder, rectum	Nil

Question

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Which lumbar spine nerve root is affected?

Your Answer

- L2
- L3
- L4
- L5 - This is the correct answer ✔
- S1 - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The L5 nerve root supplies sensation to the lateral aspect of leg and dorsum of foot (except for the lateral border which is supplied by S1). In addition, it supplies hip extensors, knee flexors (with S1), ankle dorsiflexors (with L4), and toe dorsiflexors.

Root	Dermatome distribution	Myotome distribution	Tendon reflex
L1	Skin above, and below the inguinal ligament	None	Nil
L2	Upper anterior, and medial thigh	Psoas hip abductors	Nil
L3	Mid anterior, and medial thigh	Psoas quadriceps	Patella (L3-4)
L4	Medial aspect of leg, front of knee, and lower lateral thigh	Tibialis anterior, extensor hallucis	Patella (L3 - 4)
L5	Lateral aspect of leg and dorsum of foot (except for the lateral border which is supplied by S1)	Extensor halluces, peroneal, gluteus medius, dorsiflexors, hamstrings	Plantar (L5, S1-2)
S1	Posterior lateral thigh and calf	Peroneal, plantar flexors	Ankle (S1-2)
S2	Popliteal fossa	Many, in combination with other nerve roots - including knee flexors	Ankle (S1-2)
S3 - 5	Medial buttock and perianal skin in a concentric manner with S3 most lateral, and s5 closest to the anus	Bladder, rectum	Nil

Question

A 54-year-old man presents with a six day history of sharp shooting pain radiating from his back to the lateral aspect of his leg. The pain is associated with pins and needles

Next

Question

A 28-year-old man presented with acute stiffness and swelling of his knees and ankles, and a painful rash on his legs.

The erythrocyte sedimentation rate (ESR) was 86 mm in the first hour (0-15). Chest x ray showed hilar lymphadenopathy.

What is the most likely outcome?

(Please select 1 option)

- Chronic arthritis
- Pulmonary fibrosis
- Renal failure
- Skin ulceration
- Spontaneous improvement

Answer Question

Correct

Explanation

The description is typical of acute sarcoidosis with erythema nodosum, polyarthropathy and hilar lymphadenopathy.
This has a good prognosis and usually resolves spontaneously over six to eight weeks.

Question

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The erythrocyte sedimentation rate (ESR) was 86 mm in the first hour (0-15). Chest x ray showed hilar lymphadenopathy.
What is the most likely outcome?

Your Answer

- Chronic arthritis
- Pulmonary fibrosis
- Renal failure
- Skin ulceration
- ✓ Spontaneous improvement - Correct ✔

Next

Question

A 50-year-old man presents with a two month history of progressive painless weakness affecting the proximal arms and legs.

He has noticed difficulty getting out of a low chair and some difficulty swallowing but denies any rashes or visual symptoms.

Investigations shows a CK of 5000IU/l.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Guillain-Barre syndrome
- Hypothyroidism
- Myasthenia gravis
- Polymyalgia rheumatica (PMR)
- Polymyositis

Answer Question

Polymyositis classically presents with relatively painless progressive proximal muscle weakness. Dysphagia is common but the ocular muscles are very rarely involved unlike myasthenia gravis where this is a predominant feature.

Diagnosis of polymyositis confirmed by elevated muscle enzymes (creatine kinase) and typical EMG and muscle biopsy findings.

PMR is characterised by marked proximal stiffness and pain but rarely weakness and the muscle enzymes are typically normal.

Although hypothyroidism can present with a proximal myopathy and elevated creatine kinase (CK) levels the latter are rarely elevated above 500IU/l and dysphagia would not be typical.

Guillain-Barre syndrome causes demyelination and axonal degeneration, which results in acute, ascending and progressive neuropathy. 75% of patients have a history of preceding infection, usually of the respiratory and gastrointestinal tract. Mild rises in CK can be seen but they are not as marked as in polymyositis, and the progression of disease is much quicker.

Question

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Investigations shows a CK of 5000IU/l.

Which of the following is the most likely diagnosis?

Your Answer

- Guillain-Barre syndrome
- Hypothyroidism
- Myasthenia gravis
- Polymyalgia rheumatica (PMR)
- ✓ Polymyositis - Correct ✔

Next

Question

A 67-year-old woman with polymyalgia rheumatica was commenced on prednisolone 15 mg/day, and had excellent therapeutic response.

The steroid dose has now been reduced to 10 mg/day, and the plan is to continue tapering the prednisolone dose by 1 mg/month, aiming to discontinue prednisolone in a year's time.

Which of the following is the best approach to osteoporosis prophylaxis for her?

(Please select 1 option)

- Alendronic acid
- Alendronic acid, and calcium carbonate + vitamin D
- Calcium carbonate
- Calcium carbonate + vitamin D
- Check bone mineral density

Answer Question

Explanation

Oral glucocorticoids are associated with significant increase in fracture risk from doses as low as 5 mg daily. Loss of bone mineral density is greatest in the first few months of glucocorticoid therapy, but fracture risk declines rapidly after stopping. There is an increased risk of fracture over and above the effect of low bone mineral density.

Patients older than 65 years are considered at high risk of osteoporotic fractures, as are those with a prior fragility fracture, and they should commence on bone protective therapy at the time of starting glucocorticoid therapy.

Measurement of bone density is not required before starting therapy. In patients younger than 65 years without risk factors, DEXA scan is recommended for assessment of fracture risk.

General measures to reduce bone loss include use of the lowest dose of glucocorticoids possible, and steroid-sparing agents. Dietary calcium should be increased and appropriate physical activity should be encouraged, with smoking and alcohol minimised. Daily intake 1,500 mg of calcium and 800 U of vitamin D3 is recommended.

Bone protective therapy which can be used includes alendronate, alfacalcidol, calcitonin, calcitriol, cyclic etidronate and risedronate.

Reference:

National Osteoporosis Society. Glucocorticoid-induced osteoporosis: A concise guide to prevention and treatment.

Question

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The steroid dose has now been reduced to 10 mg/day, and the plan is to continue tapering the prednisolone dose by 1 mg/month, aiming to discontinue prednisolone in a year's time.

Which of the following is the best approach to osteoporosis prophylaxis for her?

Your Answer

- Alendronic acid
- Alendronic acid, and calcium carbonate + vitamin D - This is the correct answer ✔

Next

Question

A 75-year-old man has persistent back pain for several months that is unrelated to physical activity. He has lost 12 kg in weight during this time.

Laboratory findings show:

White cell count	6.7 $\times 10^9$/L	(4-11)
Neutrophils	5.4 $\times 10^9$/L	(1.5-7)
Lymphocytes	1.2 $\times 10^9$/L	(1.5-4)
Monocytes	0.2 $\times 10^9$/L	(0-0.8)
Haemoglobin	112 g/L	(130-180)
Haematocrit	33.3%	
MCV	88 fL	(80-96)
Platelet count	89 $\times 10^9$/L	(150-400)

The biochemistry shows:

Sodium	144 mmol/L	(137-144)
Potassium	4.5 mmol/L	(3.5-4.9)
Chloride	100 mmol/L	(95-107)
Bicarbonate	26 mmol/L	(12-16)
Urea	14 mmol/L	(2.5-7.5)
Creatinine	90 µmol/L	(60-110)
Glucose	5.4 mmol/L	(3.0-6.0)

A CT scan of the spine reveals scattered 0.4 to 1.2 cm bright lesions in the vertebral bodies.
Which of the following additional laboratory test findings is he most likely to have?

(Please select 1 option)

Answer Question

MCV	88 fL	(80-96)
Platelet count	89 $\times 10^9$/L	(150-400)

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Glucose	5.4 mmol/L	(3.0-6.0)

A CT scan of the spine reveals scattered 0.4 to 1.2 cm bright lesions in the vertebral bodies. Which of the following additional laboratory test findings is he most likely to have?

(Please select 1 option)

- Blood culture positive for *Neisseria gonorrhoeae*
- Parathyroid hormone, intact, of 100 pg/mL (normal <65)
- Positive serology for *Borrelia burgdorferi*
- Serum calcium of 1.4 mmol/L
- Serum prostate specific antigen of 35 µgram/L

Answer Question

Chloride	100 mmol/L	(95-107)
Bicarbonate	26 mmol/L	(12-16)
Urea	14 mmol/L	(2.5-7.5)
Creatinine	90 µmol/L	(60-110)
Glucose	5.4 mmol/L	(3.0-6.0)

A CT scan of the spine reveals scattered 0.4 to 1.2 cm bright lesions in the vertebral bodies.

Which of the following additional laboratory test findings is he most likely to have?

Your Answer

- Blood culture positive for *Neisseria gonorrhoeae*
- Parathyroid hormone, intact, of 100 pg/mL (normal <65)
- Positive serology for *Borrelia burgdorferi*
- Serum calcium of 1.4 mmol/L
- ✓ Serum prostate specific antigen of 35 µgram/L - Correct ✔

Rate this question

Next

Correct

Explanation

The combination of back pain, weight loss and osteosclerotic lesions makes prostatic adenocarcinoma the most likely diagnosis in this case.

Several malignancies, including those originating in the prostate, exhibit a propensity to metastasise to the bone. The sequelae include severe pain, pathological fractures, hypercalacaemia and spinal cord compression. Osteoclast-mediated bone degradation and subsequent bone loss are the hallmarks of secondary bone metastases from most solid tumours. In prostate carcinoma, the majority of lesions are osteosclerotic due to inappropriate bone production.

The mainstay of treatment of metastatic bone disease is usually with intravenous bisphosphonates, which reduces bone pain in addition to treating hypercalcaemia. Current evidence indicates that the nitrogen-containing bisphosphonates, especially zolendronic acid, are potent inhibitors of bone resorption. Radiotherapy can also be used to reduce symptoms from localised bone lesions, and taxane-based chemotherapy can be effective for widespread disease. Increased understanding of the pathogenesis of bone metastases has resulted in the development of targeted therapies including RANKL inhibitors, and inhibitors of SRC and cABL kinases.

Gonorrhoea, caused by *Neisseria gonorrhoeae* is the second most common sexually transmitted infection in the UK. It typically affects a younger age group than described here, and septicaemia is uncommon. Whilst it can be associated with septic and reactive arthritis, these CT findings are not typical.

Hyperparathyroidism is a disease of increased bone resorption and bone formation. Radiographic findings differ in primary and secondary hyperparathyroidism, but neither would explain the weight loss and the pain is typically more generalised.

Borrelia burgdorferi causes Lyme disease, which classically presents with fever and erythema migrans following a tick bite in an edemic area (e.g. the New Forest). Without treatment, it can progress to disseminated disease with a polyarticular arthritis but isolated persistent back pain is not typical.

Hypocalcaemia can be seen in patients with bone metastases, but this is rare and at levels this low you would expect symptoms of neuromuscular irritability (e.g. paraesthesia and carpopedal spasm).

Reference:

1. Lipton A. Implications of bone metastases and the benefits of bone-targeted therapy. *Semin Oncol.* 2010;37:S15-29.

Next

Question

A 71-year-old man with a history of chronic renal impairment and atrial fibrillation for which he takes warfarin, presents with an acutely tender and red left big toe.
Investigations reveal:

Serum creatinine	200 µmol/L	(50-100)
Serum urate	0.5 mmol/L	(0.12-0.42)

Which of the following is the most appropriate treatment for this man's presentation?

(Please select 1 option)

- Allopurinol
- Colchicine
- Diclofenac
- Paracetamol
- Prednisolone

Answer Question

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- ✓ Prednisolone - Correct ✔

Rate this question



Next

Correct

Explanation

This man presents with acute gout, has chronic renal impairement, AF and takes warfarin.

Non-steroidal anti-inflammatory drugs (NSAIDs) would be the treatment of choice but may cause a deterioration in renal function and would be associated with an increased risk of bleeding in the elderly.

The adverse effects of colchicine (especially gastrointestinal symptoms) would be more likely in the elderly and should probably be avoided in those with renal impairment of this degree.

Thus steroids are probably the best option.

Allopurinol may well precipitate/exacerbate acute gout and is used once the acute attack has settled following adequate treatment.

This is a classic MRCP question since it is hard to answer this by just looking in textbooks. Steroids are the last resort choice where NSAIDs and colchicine are deemed too dangerous to use and that is a matter of judgement applied by physicians. There is plenty of evidence for their efficacy.

Question

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Next

Question

A man in his 20s begins to note persistent lower back pain and stiffness that diminishes with activity.

In his 30s he also develops hip and shoulder arthritis and in his 40s he is bothered by decreased lumbar spine mobility. He has no other major medical problems.

For which of the following are these findings most typical?

(Please select 1 option)

- Ankylosing spondylitis
- Calcium pyrophosphate dihydrate deposition disease
- Lyme disease
- Osteoarthritis
- Rheumatoid arthritis

Answer Question

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010;22:375-80.

Question

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Rate this question



Next

Explanation

The combination of lower back pain, stiffness and reduced spinal mobility makes ankylosing spondylitis the most likely diagnosis here.

Ankylosing spondylitis (AS) is a chronic, potentially disabling, form of seronegative spondyloarthropathy which primarily involves the axial skeleton. The aetiology is not clearly understood, but it involves the interaction of genetic and environmental factors. The pathology mainly affects the entheses, where ligaments, tendons and capsules are attached to the bone.

Current British Society for Rheumatology recommendations state that the modified New York criteria should be used to diagnose ankylosing spondylitis:

Clinical criteria:

- Low back pain, present for more than three months, improved by exercise but not relieved by rest
- Limitation of lumbar spine motion in both the sagittal and frontal planes
- Limitation of chest expansion relative to normal values for age and sex.

Radiological criteria:

- Sacroiliitis on x ray.

Diagnosis:

- Definite AS if the radiological criterion is present plus at least one clinical criterion
- Probable AS if three clinical criteria are present alone or if the radiological criterion is present but no clinicial criteria are present.

It is widely accepted that making the diagnosis early is difficult because the onset is insidious, and there is no definitive diagnostic test. One study has stated that the average time from onset to diagnosis ranges from 3-11 years. Timely diagnosis therefore requires a high index of suspicion.

HLA-B27 is found in 90% patients with AS but also in 8% of the general population and therefore should not be relied upon in making a diagnosis.

MRI can visualise sacroiliitis in patients with typical symptoms of AS but normal radiographs, and it is evolving as the most important diagnostic imaging tool in early disease. However, as yet a diagnosis of ankylosing spondylitis cannot be made on MRI findings alone and these cases are currently termed non-radiographic axial spondyloarthritis (SpA).

Both HLA-B27 and sacroiliitis on MRI play a major role in the recently proposed Assessment of Spondylo-Arthritis International Society (ASAS) diagnostic algorithm. This may replace the

Both HLA-B27 and sacroiliitis on MRI play a major role in the recently proposed Assessment of Spondylo-Arthritis International Society (ASAS) diagnostic algorithm. This may replace the modified New York criteria in the future.

An x ray of the lumbar spine may show bridging syndesmophytes between the vertebral bodies in keeping with ankylosing spondylitis but this is not part of the diagnostic criteria, and it is a late sign.

Radiographic sacroiliitis is a requirement for patients to be eligible for anti-TNF treatment for AS. The sacroiliitis is usually bilateral and symmetrical. It progresses from blurring of the subchondral bone plate to irregular erosions of the margins of the sacroiliac joints to sclerosis, narrowing, and finally fusion. Erosions of the sacroiliac joint are generally seen earlier in the lower portion due to its synovial lining, and on the iliac side due to the thinner cartilage covering this side of the joint.

Calcium pyrophosphate dihydrate deposition is the pathological basis of pseudogout, which typically presents as acute monoarthritis of the peripheral joints. It is not typically associated with spinal disease, and would be unusual in some one of this age.

Borrelia burgdorferi causes Lyme disease, which classically presents with fever and erythema migrans following a tick bite in an endemic area (for example, the New Forest). Without treatment, it can progress to disseminated disease with a polyarticular arthritis but persistent back pain and stiffness is not usual.

Osteoarthritis can affect the lumbar spine with similar symptoms to those described above, but is very uncommon in patients in their twenties.

Rheumatoid arthritis typically affects the small joints of the hands, and cervical spine involvement is more common than lumbar disease.

References:

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010;22:375-80.

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Your Answer

Next

Question

Which of the following is a pro-inflammatory cytokine?

(Please select 1 option)

- C reactive protein
- IL-4
- IL-10
- Serum amyloid precursor protein
- Tumour necrosis factor - alpha

Answer Question

Correct

Explanation

C reactive protein and serum amyloid precursor protein are acute phase reactants.
IL-4 and IL-10 are anti-inflammatory cytokines.
TNF-alpha is a pro-inflammatory cytokine.
In inflammatory disorders such as rheumatoid arthritis, the levels of TNF-alpha are markedly elevated in inflamed joints.
Treatments directed at the inhibition of TNF-alpha such as infliximab (a monoclonal antibody against TNF-alpha) have been shown to be very effective in the treatment of rheumatoid arthritis and also effective in fistulating Crohn's disease.

Question

Which of the following is a pro-inflammatory cytokine?

Your Answer

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- IL-4
- IL-10
- Serum amyloid precursor protein
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Next

Question

A 35-year-old woman presents with malaise, thirst, and increasing nocturia over the last month.

Six months ago she attended the Emergency Department with an episode of renal colic. One month previously her GP had noted an eruptive, painful, erythematous rash on the anterior shins, which was self-limiting.

Which of the following is the likely cause of her symptoms?

(Please select 1 option)

- Hypercalcaemia
- Hyperglycaemia
- Hyperoxaluria
- Hypocalcaemia
- Hypokalaemia

Answer Question

nephrolithiasis develops.

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- Hyperoxaluria
- Hypocalcaemia
- ✓ Hypokalaemia - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

The most likely diagnosis in this case is sarcoidosis.

Sarcoidosis is a multisystem granulomatous disorder. It is relatively uncommon in the United Kingdom as a whole, but is more prevalent and more severe in Afro-Caribbean populations. Onset of symptoms is typically in adults around 20-40-years-old.

Features of sarcoidosis include:

- Bilateral hilar lymphadenopathy
- Hypercalcaemia, which may be sensitive to steroids
- Erythema nodosum
- Neurological sequelae including neuropathy and Bell's palsy
- Cardiomyopathy
- Eye inflammation: uveitis and conjunctivitis, and
- Hepatosplenomegaly.

Hypercalcaemia has a varied presentation.

At levels less than 2.8 mmol/L polyuria, polydipsia, dyspepsia, depression and mild cognitive impairment predominate. At levels up to 3.5 mmol/L patients present with muscle weakness, constipation, anorexia, nausea, and fatigue. Above this level, patients develop vomiting, dehydration, cardiac arrhythmias, coma, and pancreatitis.

Hyperglycaemia can cause thirst, nocturia and malaise but is not commonly associated with renal colic, or erythema nodosum.

Hypocalcaemia leads to paraesthesia, tetany, carpopedal spasm, and muscle cramps.

Hypokalaemia is generally asymptomatic, but severe deficiency can cause muscle weakness, paraesthesia, and tetany.

Hyperoxaluria can be either primary or secondary, and is normally asymptomatic until nephrolithiasis develops.

Question

Next

Question

A 55-year-old woman with longstanding well controlled seropositive RA, treated with methorexate (20 mg/week) and folic acid 5 mg/day, presents with cough productive of green phlegm, fever (38.5°C), and severe sore throat.

On examination, the BP is 110/70 mmHg, SaO_2 is 98% on air, there is an occasional crackle at the right base. A chest x ray is normal. FBC, UEC, and LFTs are also normal. The CRP is 34 mg/L.

Which of the following is the most appropriate course of action?

(Please select 1 option)

- IV antibiotics, continue methotrexate
- IV antibiotics, stop methotrexate, and give folinic acid rescue
- IV antibiotics, stop methotrexate temporarily
- Oral antibiotics, continue methotrexate
- Stop methotrexate

Answer Question

Explanation

The most likely diagnosis in this scenario is a lower respiratory tract infection.

In the setting of acute infection, most DMARDs (except hydroxychloroquine) should be discontinued until the infectious process has resolved. Whilst it is possible the infection could be successfully treated with oral antibiotics, there is not an option here which includes this with stopping methotrexate therefore this is the correct answer.

Methotrexate is a folic acid antagonist. It can result in a pneumonitis that manifests with non-specific symptoms such as fever, fatigue, cough and dyspnoea. It is rare and the presence of a productive cough here makes the diagnosis less likely but if suspected methotrexate should be stopped immediately. Additional adverse effects include hepatotoxicity, alopecia, mouth ulcers and nausea. Folic acid should be given daily to reduce the incidence of these in patients treated with methotrexate.

Taken in overdose, methotrexate can cause multiple organ damage. Folinic acid is indicated and should be given intravenously as soon as it is suspected to limit toxicity. There is no suggestion of methotrexate overdose in this patient, and therefore folinic acid is not indicated.

Question

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Next

Question

A 19-year-old Japanese student comes to the rheumatology clinic for review. She has suffered increasing fatigue, weight loss and low grade fevers over the last few months and is concerned that she may have an autoimmune problem. Other symptoms include dull abdominal pain after she has eaten, and problems with aching arms whilst exercising at the gym over the past few months. She has fainted on one occasion whilst painting her flat. On examination she looks pale and grey. BP is 135/90 in the right arm and 105/80 in the left arm. Heart sounds are normal and the chest is clear. Abdomen is soft and non-tender, her BMI is 21. When you ask her to hold her hands above her head, the radial pulse becomes absent in the left arm and is barely palpable in the right. There is synovitis affecting the knees and ankles. ESR and CRP are elevated.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Fibromuscular dysplasia
- Juvenile chronic arthritis
- Kawasaki's disease
- Takayasu's arteritis
- Temporal arteritis

Answer Question

The answer is Takayasu's arteritis. Takayasu's arteritis presents with non-specific symptoms of vasculitis early in the course of the disease, but later significant involvement of branches of the aorta leads to symptoms of arterial insufficiency. The subclavian artery is commonly affected, and subclavian steal syndrome can result in the symptoms described here. ESR and CRP are usually elevated, and levels of pentraxin 3 may be a useful marker of disease activity. Glucocorticoids are the mainstay of treatment, with methotrexate and azathioprine the typical first choice conventional steroid sparing agents.

Fibromuscular dysplasia presents with discrete arterial disease, without the systemic features seen here, and temporal arteritis presents with headache, visual symptoms and jaw claudication. Kawasaki's disease is a paediatric vasculitis affecting the coronary arteries, and juvenile chronic arthritis is not associated with vascular symptoms.

Question

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Next

Question

A 56-year-old woman presents with a six day history of sharp shooting pain radiating to her right forearm, with paraesthesia.

On examination, she has sensory loss affecting the centre of her palm and the right hand middle finger. Elbow and finger extension are weak and the triceps jerk is absent.

Which cervical spine nerve root is affected?

(Please select 1 option)

- C5
- C6
- C7
- C8
- T1

Answer Question

Incorrect

Explanation

This patient has cervical disc prolapse pressing on the C7 nerve root.
It is possible to identify the compressed nerve root by examining the power, sensation, reflexes in the upper lower limbs.

Root	Dermatome distribution	Myotome distribution	Tendon reflex
C4	Upper outer shoulder	Shoulder abduction	Nil
C5	Outer arm, forearm	Shoulder abduction, elbow flexion	Bicep
C6	Index and thumb	Wrist extension	Supinator
C7	Middle finger centre of palm	Finger and elbow extension	Triceps
C8	Little finger, ulnar border of hand	Wrist/finger flexion	Finger jerk

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Next

Question

A 50-year-old man with insulin dependent diabetes presents with a two week history of an acutely painful, erythematosus, swollen left mid-foot for the last two weeks. He does not drink alcohol, and has had no recent injuries to the foot.

On examination, the mid-foot is warm. Pedal pulses are intact. There is sensory loss in a glove and stocking distribution bilaterally. Recent blood tests show a normal FBC, CRP, urea, and electrolytes and creatinine.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Cellulitis
- Charcot joint
- Deep venous thrombosis
- Fragility fracture
- Gout

Answer Question

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Rate this question



Next

Incorrect

Explanation

In patients with longstanding diabetes and peripheral neuropathy, a red hot swollen foot should raise suspicion of Charcot neuroarthropathy.

Charcot neuropathy presents as a warm, swollen, erythematous foot and ankle, and infection is important to exclude. The majority of patients are in their 50-60s, and they often present in the latter stages of the disease.

It can occur in association with a variety of conditions, including leprosy, poliomyelitis, and rheumatoid arthritis, although today the most common cause is diabetes mellitus.

The pathophysiology of Charcot neuroarthropathy is not completely understood, but is thought to start with peripheral neuropathy. The lack of pain sensation may mean that patients subject the foot joints (commonly the midfoot) to stress injuries that lead to the Charcot process. It is important to note however that about half of patients present with pain.

Four stages of Charcot neuropathy are recognised:

- Stage 0 (inflammation) - characterised by erythema and oedema, but no structural changes
- Stage 1 (development) - bone resorption, fragmentation and joint dislocation. Swelling, warmth and erythema persist but there are also radiographic changes such as debris formation at the articular margins, osseous fragmentation, and joint disruption
- Stage 2 (coalescence) - bony consolidation, osteosclerosis, and fusion are all seen on plain radiographs
- Stage 3 (reconstruction) - osteogenesis, decreased osteosclerosis, progressive fusion. Healing and new bone formation occur, and the deformity becomes permanent.

Radiographs are an important part of investigating a patient with possible Charcot arthropathy. All radiographs should be taken in the weight-bearing position.

MRI can demonstrate changes in the earlier stages of the condition, and is therefore important in allowing treatment to be instigated earlier.

In stages 0 and 1, the treatment is immediate immobilisation and avoidance of weight bearing. A total-contact cast is worn until the redness, swelling and heat subside (generally 8-12 weeks, changed every 1-2 weeks to minimise skin damage). After this, the patient should use a removable brace for a total of four to six months.

Bisphosphonates can be used, but evidence of clinical benefit is lacking. Surgery is reserved for severe deformities that are susceptible to ulceration, and where braces and orthotic devices are difficult to use.

Next

for severe deformities that are susceptible to ulceration, and where braces and orthotic devices are difficult to use.

A normal FBC and CRP in this case make cellulitis unlikely. There is no swelling of the calf to suggest a deep vein thrombosis.

Fragility fractures are those which are caused by a force equivalent to a fall from the height of a chair or less. They are typically seen on a background of osteoporosis and there is usually a history of trauma.

Gout classically causes an acute monoarthritis and the presentation is typically more acute than described here.

Reference:

Botek G, et al. Charcot neuroarthropathy: An often overlooked complication of diabetes. *Cleve Clin J Med.* 2010;77:593-9.

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Next

Question

A 68-year-old woman presents with a one week history of acute onset right-sided headache, symmetrical shoulder pains and malaise. Her food intake has reduced which she attributes to a loss of appetite and aching of her jaw and tongue occurring during meals. She reports one transient episode of a curtain apparently descending over her right eye before spontaneously resolving.

Clinical examination demonstrated a tender, beaded and pulseless temporal artery. Fundoscopy revealed a swollen and pale right optic disc with haemorrhages. There was a relative afferent pupillary defect.

Her ESR measured 55 mm/hr (0-30).

Which one of the following increases the likelihood of a positive temporal artery biopsy?

(Please select 1 option)

- Arthralgia
- Jaw claudication
- Lethargy
- Loss of appetite
- Subjective fever

Answer Question

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- Lethargy
- Loss of appetite
- ✓ Subjective fever - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

It is important to be aware of the following learning points:

- Clinical features of temporal arteritis (TA)
- Diagnosis of TA
- Significance of associated clinical features in relation to obtaining a positive diagnostic biopsy.

A 2002 meta-analysis[1] evaluated the relationship between the clinical features of temporal arteritis (TA) and the likelihood ratio (LR) of obtaining a positive temporal artery biopsy (TAB). It found the following historical features increased the likelihood of a positive TAB;

- Jaw claudication (LR 4.2)
- Diplopia (LR 3.4).

The following physical findings also increased the likelihood;

- Temporal artery tenderness (LR 2.6)
- Prominence (LR 4.3) and
- Beading (LR 4.6).

Neuro-ophthalmic complications are closely linked with TAB positivity. The following were associated with a reduction in likelihood of TAB positivity;

- Absence of temporal artery abnormality (LR0.53)
- Normal ESR (LR 0.2).

The presence of skip lesions and suboptimal sampling (for example, less than 1 cm, ideally should be more than 2 cm) are also associated with a negative TAB.

Reference:

1. Smetana GW, Shmerling RH. Does this patient have temporal arteritis? *JAMA*. 2002;287:92-101.

Question

Next

Question

A 72-year-old lady presents with pain and swelling of the left wrist.

Three weeks ago she received an intra-articular steroid injection into the wrist as treatment of chronic pain which was thought to be due to osteoarthritis.

On examination the joint is erythematous, swollen and tender.

Results reveal:

White cell count	12.5 $\times 10^9$/L	(4-11)
Rheumatoid factor	34 U/L	(<20)

x Ray of wrist revealed a bony destruction of the joint and wrist aspiration revealed only a dry tap.

What is the most likely diagnosis?

(Please select 1 option)

- Acute gout
- Acute inflammatory reaction related to osteoarthritis
- Acute rheumatoid arthritis
- Pyrophosphate arthropathy
- Septic arthiritis

Answer Question

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- Acute inflammatory reaction related to osteoarthritis
- Acute rheumatoid arthritis
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Rate this question



Next

Correct

Explanation

Septic arthritis is a potential catastrophic complication of intra-articular steroid injection, although it is rare. In general there is wide variation in the precautions taken to avoid such a complication. Fluid should be aspirated for urgent Gram-stain and antibiotics started immediately (choice depends on local policy). Small joints such the wrist can be very difficult to aspirate, and possible cases should be discussed with the orthopaedic surgeons as soon as possible.

Gout presents with acute onset of pain, classically in the first metatarsophalyngeal joint of the foot, due to monosodium urate crystal deposition. It is more common in men than women.

Pseudogout more commonly complicates osteoarthritis, and results from calcium pyrophosphate crystal deposition. The knee is affected more often than the wrist, and in the context of recent instrumentation it is critical septic arthritis is excluded.

A flare of osteoarthritis is a possibility but septic arthritis needs to be excluded before making this diagnosis. Whilst a septic arthritis usually develops within 3-4 days of intra-articular injections presentation can be delayed. Not all septic arthritis cause a systemic inflammatory response, and the absence of 'sepsis' does not exclude the diagnosis.

In a lady of this age, with no other features and a known diagnosis of osteoarthritis, rheumatoid arthritis is unlikely. The positive rheumatoid factor is a red herring, it is mildly positive here and is found in 2.5% of the population and may be raised in association with malignancy, systemic lupus erythematosus and infection.

Reference:

Charalambous CP et al. Septic arthritis following intra-articular steroid injection of the knee - a survey of current practice regarding antiseptic technique used during intra-articular steroid injection of the knee. *Clin Rheumatol.* 2003;22:386-390.

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Results reveal:

Next

Question

A 55-year-old lady has recently commenced on 20 mg of leflunomide daily for sero-negative rheumatoid arthritis.

At baseline, prior to commencing the drug, her AST was 33 U/L (1-31) and her ALT was 40 U/L (5-35).

She attends for routine blood monitoring. Her FBC is normal but her liver function tests (LFTs) reveal:

AST	58 U/L	(1-31)
ALT	71 U/L	(5-35)
Alkaline phosphatase	100 U/L	(45-105)
Bilirubin	12 µmol/L	(1-22)

What is the most appropriate management option for this patient?

(Please select 1 option)

- Continue leflunomide and monitor LFTs in one month
- Continue leflunomide and monitor LFTs in two weeks
- Reduce the dose and recheck LFTs in one week
- Stop leflunomide and commence washout procedure
- Stop the leflunomide and repeat tests in two weeks

Answer Question

U/L (5-35).

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Your Answer

- Continue leflunomide and monitor LFTs in one month
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- Reduce the dose and recheck LFTs in one week - This is the correct answer ✔
- Stop leflunomide and commence washout procedure
- ✓ Stop the leflunomide and repeat tests in two weeks - Incorrect answer selected ✖

Rate this question

Next

Explanation

Leflunomide is associated with serious hepatotoxicity.

Increased aminotransferases are commonly seen in association with therapy occurring in 15-20% of cases (less than a twofold rise).

However, more serious elevation (greater than threefold) is seen in less than 5%.

Generally, most hepatic events occur within the first six months of use. It is recommended liver function tests (LFTs) be checked monthly for six months and, if stable, two monthly thereafter.

If aspartate aminotransferase (AST) or alanine aminotransferase (ALT) is between two and three times the upper limit of normal, and the leflunomide dose is more than 10 mg daily, the dose should be reduced to 10 mg and LFTs rechecked weekly until normalised. If the ALT and AST are returning to normal, the patient should be left on 10 mg per day. It the LFTs remain elevated, leflunomide should be stopped and discussed with the specialist team.

If the AST or ALT is more than three times the upper limit of normal, the LFTs should be rechecked within 72 hours. If they remain more than three times the reference range, leflunomide should be stopped and washout considered (cholestyramine and activated charcoal). It is important to note that the half life of leflunomide is usually two weeks (mean 1-4) therefore if a rapid response is required, washout should be considered.

Current UK guidance also recommends frequent monitoring for patients on leflunomide. Full blood count (FBC) should be checked monthly for six months and, if stable, two monthly thereafter.

White cell count less than 3.5, neutrophils less than 2 or platelets less than 150 should be discussed with the specialist team, and leflunomide withheld until this has taken place.

Monitoring should be continued at least monthly in the long term if leflunomide is co-prescribed with any other immunosuppressant or potentially hepatotoxic agent.

In addition, signs of leflunomide toxicity should be monitored. If the patient develops a rash or itch dose reduction should be considered, with or without the addition of antihistamines. If severe, leflunomide should be stopped and washout considered.

Hair loss, headaches and gastrointestinal upset may also warrant dose reduction or washout.

A blood pressure of greater than 140/90 mmHg should be treated as per NICE guidelines. If it remains elevated, stop leflunomide and consider washout.

Weight should be monitored, and a weight loss of greater than 10% should be identified. If no other cause can be found, consider dose reduction or washout.

If there is increasing shortness of breath, pneumonitis should be considered and leflunomide should be stopped.

Reference:

Next

Question

You are reviewing a 42-year-old woman in clinic. She was diagnosed with rheumatoid arthritis last year after presenting with small hand joint synovitis and stiffness.

At that time her rheumatoid factor and anti-CCP levels were 1:20 titre and 700 U/ml respectively. Unfortunately, despite 12 months on a combination of prednisolone, methotrexate and leflunomide, she still has moderate disease activity based on a DAS-28 (disease activity score) score of 3.2.

She is being considered for etanercept.

Preliminary tests demonstrate a normal chest radiograph, but positive QuantiFERON test. She is asymptomatic.

From the following options, which is the most appropriate treatment?

(Please select 1 option)

- Consider infliximab as an alternative
- Hold etanercept until treatment is completed for active TB
- Prescribe etanercept and monitor closely
- Prescribe etanercept with TB prophylaxis
- None of the above

Answer Question

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From the following options, which is the most appropriate treatment?

Your Answer

- Consider infliximab as an alternative
- Hold etanercept until treatment is completed for active TB
- Prescribe etanercept and monitor closely
- Prescribe etanercept with TB prophylaxis - This is the correct answer ✔
- ✓ None of the above - Incorrect answer selected ✖

Rate this question



Next

Explanation

It is important to be aware of the following teaching points:

- Recommendations for biologic therapy in rheumatoid arthritis (RA)
- Contraindications to biologic therapy, and
- Basic disease scoring in RA.

This lady has a DAS-28 score persistently greater than 3.2 and has failed on a combination of more than two disease modifying agents, thus fulfilling the criteria for consideration of anti-TNF (biologic) therapy.

Patients receiving anti-TNF alpha treatment have an increased risk of clinical tuberculosis (TB) development. The current British Thoracic Society guidelines therefore recommend a clinical examination, chest radiograph and thorough history taken to check for prior TB.

Any patient with an abnormal chest radiograph or previous history of TB should be referred for assessment by a specialist with an interest in TB. Those with symptoms raising a suspicion of TB should be thoroughly investigated to exclude active disease. Any patient with active TB, either pulmonary or non-pulmonary, should receive standard chemotherapy. They must complete two months full treatment before starting anti-TNF alpha treatment.

Patients with an abnormal chest radiograph consistent with past TB, or a history or prior extrapulmonary TB but who have received previous adequate therapy can be started on anti-TNF alpha therapy but need to be monitored regularly.

Where there is an abnormal chest radiograph, or a history of prior pulmonary or extrapulmonary TB not previously adequately treated, chemoprophylaxis should be given before commencing anti-TNF alpha treatment.

For patients with a normal chest radiograph who have not started immunosuppressive threrapy, a tuberculin test is helpful.

If a patient is already on immunosuppressive treatment, the result of the tuberculin test is dampened and it is therefore not useful. An individual risk assessment should be made: if the annual risk of TB is greater than that of drug-induced hepatitis then chemoprophylaxis should be given. If not, the patient should be monitored and investigated early if symptoms consistent with TB develop.

Chemoprophylaxis is generally with isoniazid for 6 months.

The BTS guidelines have not been updated to include recommendations regarding Quantiferon and Elispot tests. Practice does vary between individual NHS trusts regarding who to test with one of these, and which to use. However, the most accepted recommendations are that patients who test positive with either of these should be treated with chemoprophylaxis (either isoniazid for 6 months, or dual therapy for two months) at the same time as being started on anti-TNF alpha treatment.

Reference:

Next

Question

A 30-year-old man is referred to the outpatient clinic complaining of persistent low back pain associated with prolonged morning stiffness. His father has a long history of back problems. Which is the best option to confirm a diagnosis of ankylosing spondylitis?

(Please select 1 option)

- Blood test for HLA-B27
- Clinical examination showing reduced mobility of the spine
- Lumbar spine x ray
- MRI of the sacroiliac joints and spine
- Sacroiliac joints x ray

Answer Question

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010:22;375-380.

Question

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Your Answer

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- Clinical examination showing reduced mobility of the spine
- Lumbar spine x ray
- MRI of the sacroiliac joints and spine
- ✓ Sacroiliac joints x ray - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Ankylosing spondylitis (AS) is a chronic, potentially disabling, form of seronegative spondyloarthropathy which primarily involves the axial skeleton. The aetiology is not clearly understood, but it involves the interaction of genetic and environmental factors. The pathology mainly affects the entheses, where ligaments, tendons and capsules are attached to the bone.

Current British Society for Rheumatology recommendations state that the modified New York criteria should be used to diagnose ankylosing spondylitis:

Clinical Criteria:

- Low back pain, present for more than 3 months, improved by exercise but not relieved by rest
- Limitation of lumbar spine motion in both the sagittal and frontal planes
- Limitation of chest expansion relative to normal values for age and sex

Radiological Criteria:

- Sacroiliitis on x ray

Diagnosis:

- Definite AS if the radiological criterion is present plus at least one clinical criterion
- Probable AS if three clinical criteria are present alone or if the radiological criterion is present but no clinicial criteria are present

It is widely accepted that making the diagnosis early is difficult because the onset is insidious, and there is no definitive diagnostic test. One study has stated that the average time from onset to diagnosis ranges from 3-11 years. Timely diagnosis therefore requires a high index of suspicion.

HLA-B27 is found in 90% patients with AS but also 8% of the general population therefore should not be relied upon in making a diagnosis.

A clinical examination showing reduced mobility of the spine should be performed and would likely show reduced range of movement of the spine but alone cannot confirm the diagnosis of ankylosing spondylitis.

MRI of the sacroiliac joints and spine can visualise sacroiliitis in patients with typical symptoms of AS but normal radiographs, and it is evolving as the most important diagnostic imaging tool in early disease. However, as yet a diagnosis of ankylosing spondylitis cannot be made on MRI findings alone and these cases are currently termed non-radiographic axial spondyloarthritis (SpA). Both HLA-B27 and sacroiliitis on MRI play a major role in the recently proposed Assessment of SpondyloArthritis International Society (ASAS) diagnostic algorithm. This may replace the modified New York criteria in the future.

Next

(SpA). Both HLA-B27 and sacroiliitis on MRI play a major role in the recently proposed Assessment of SpondyloArthritis International Society (ASAS) diagnostic algorithm. This may replace the modified New York criteria in the future.

An x ray of the lumbar spine may show bridging syndesmophytes between the vertebral bodies in keeping with ankylosing spondylitis but this is not part of the diagnostic criteria, and it is a late sign.

An x ray of the sacroiliac joints is the current gold standard for the diagnosis of ankylosing spondylitis as part of the modified New York criteria. Radiographic sacroiliitis is a requirement for patients to be eligible for anti-TNF treatment for AS.The sacroiliitis is usually bilateral and symmetrical. It progresses from blurring of the subchondral bone plate to irregular erosions of the margins of the sacroiliac joints to sclerosis, narrowing, and finally fusion. Erosions of the sacroiliac joint are generally seen earlier in the lower portion due to its synovial lining, and on the iliac side due to the thinner cartilage covering this side of the joint.

Reference:

Rudwaleit M. New approaches to diagnosis and classification of axial and peripheral spondyloarthritis. *Curr Opin Rheumatol.* 2010:22;375-380.

Question

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- Blood test for HLA-B27
- Clinical examination showing reduced mobility of the spine
- Lumbar spine x ray
- MRI of the sacroiliac joints and spine
- ✓ Sacroiliac joints x ray - Correct ✔

Next

Question

A 79-year-old woman presents with mild dyspnoea and confusion. Of note in her past medical history is a one year history of Raynaud's phenomenon.

On examination her pulse is 118 beats per minute, she has a blood pressure of 122/88 mmHg, and she has a small ulcer on her right big toe.

Auscultation of her chest reveals bibasal crackles and she has mild ankle oedema.

Her investigations show:

Haemoglobin	95 g/L	(115-165)
White cell count	3.5 $\times 10^9$/L	(4-11)
Platelet count	110 $\times 10^9$/L	(150-400)
Serum total protein	120 g/L	(61-76)

Serum immunoglobulins:

IgA	0.8 g/L	(0.8-3.0)
IgG	15 g/L	(6.0-13.0)
IgM	70 g/L	(0.4-2.5)

Which of the following complications is she likely to develop?

(Please select 1 option)

- Acute renal failure
- Atypical pneumonia
- Erythema repens gyratum
- Hyperviscosity syndrome
- Pathological bone fracture

Answer Question

Platelet count	110 $\times 10^9$/L	(150-400)
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Which of the following complications is she likely to develop?

Your Answer

- Acute renal failure
- Atypical pneumonia
- Erythema repens gyratum
- Hyperviscosity syndrome - This is the correct answer ✔
- ✓ Pathological bone fracture - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This elderly woman has a very raised IgM level, pancytopenia, Raynaud's phenomenon, and a foot ulcer.

The most likely diagnosis here is Waldenström's macroglobulinaemia (WM). WM refers to a condition that presents in the seventh or eighth decade of life.

It is characterised by the presence of a high level of a macroglobulin (immunoglobulin M [IgM]), elevated serum viscosity and the presence of a lymphoplasmacytic infiltrate in the bone marrow, resulting in pancytopenias.

Raynaud's phenomenon may herald the onset of this condition and is due to cryoglobulinaemia.

The monoclonal IgM causes:

- hyperviscosity syndrome
- cryoglobulinaemia types 1 and 2
- coagulation abnormalities
- polyneuropathies
- cold agglutinin disease and anaemia
- primary amyloidosis, and
- tissue deposition of amorphous IgM in skin, the gastrointestinal tract, kidneys, and other organs.

The other conditions described here are not commonly associated with WM, and are more often seen in combination with myeloma. Erythema repens gyratum is a skin rash thought to be a paraneoplastic process.

Question

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Next

Question

A 24-year-old male has been receiving sulfasalazine at a stable dose for six months as treatment for Reiter's disease. His most recent series of blood tests were normal.
When should he next be screened?

(Please select 1 option)

- Two weeks
- One month
- Three months
- Six months
- One year

Answer Question

sulfasalazine withheld until results are available.

Reference:

NICE Clinical Knowledge Summaries. Sulfasalazine Monitoring Requirements.

Question

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When should he next be screened?

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- One month
- Three months - This is the correct answer ✔
- Six months
- ✓ One year - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Current United Kingdom guidance suggests that during the first three months of treatment with sulfasalazine, full blood count (FBC) should be monitored monthly for the first three months.

Sulphasalazine should be withheld until discussion with the specialist team if:

- the white cell count is less than 3.5
- neutrophils is less than 2, or
- platelets are less than 150.

If mean corpuscular volume (MCV) is more than 105 fl, vitamin B12, folate and thyroid-stimulating hormone (TSH) should be checked and treated if found to be abnormal. If these are all normal it should be discussed with the specialist team.

If counts remain normal within the first three months, full blood count can be checked three monthly.

Liver function tests (LFTs) should also be checked monthly for the first three months. If either the aspartate aminotransferase (AST) or alanine aminotransferase (ALT) are more than twice the upper limit of normal sulfasalazine should be withheld until discussion with the specialist team. If the LFTs remain normal for the first three months, monitoring can be decreased to three monthly.

If, following the first year, the dose has not been increased and blood results have been stable, the frequency of monitoring can be reduced to every six months for the second year of treatment. Thereafter monitoring is not required, although FBC and LFTs should be checked one month after any dose increase.

Side effects of sulfasalazine include myelosuppression, macrocytosis, hypersensitivity and azoospermia in males.

There are numerous signs of sulfasalazine toxicity. Rash and oral ulceration should be asked about and, if severe, the drug should be withheld until specialist advice has been sought. Nausea, dizziness and headache can be common and sometimes necessitate dose reduction. If patients present with abnormal bruising or sore throat an urgent FBC should be done, and sulfasalazine withheld until results are available.

Reference:

NICE Clinical Knowledge Summaries. Sulfasalazine Monitoring Requirements.

Next

Question

A 50-year-old man presents with lethargy, polyuria, polydipsia and pain and stiffness of the hands.

He has evidence of an arthropathy affecting the second and third metacarpo-phalangeal (MCP) joints of both hands with radiographic evidence of degenerative disease at these sites. He also has 5 cm hepatomegaly.

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Gout
- Haemochromatosis
- Osteoarthritis
- Pyrophosphate arthropathy
- Rheumatoid arthritis with amyloidosis

Answer Question

This gentleman has haemochromatosis. The typical presenting features are diabetes, bronzing of the skin, hepatomegaly (due to iron deposition) and arthropathy (especially of the second and third metacarpophalangeal joints, with hook-like osteophytes on x ray). Occasionally the arthropathy affects larger joints such as the hips, knees and shoulders and can resemble rheumatoid arthritis. Other rheumatic manifestations include acute pyrophosphate arthropathy, asymptomatic chondrocalcinosis and osteoporosis.

Hereditary haemochromatosis is an autosomal recessive disorder, so taking a family history is helpful in these cases. Affected patients are at increased risk of cirrhosis and hepatocellular carcinoma. Regular phlebotomy is the main treatment, although iron chelation and therapeutic erythrocytapheresis may become more widely used in the future.

The second and third metacarpophalangeal joints are rarely affected in isolation in osteoarthritis, and this would not explain the hepatomegaly and symptoms of diabetes.

The distribution of the arthropathy, and associated polyuria and polydipsiais not typical for gout or pseudogout (pyrophosphate arthropathy).

Amyloidosis secondary to rheumatoid arthritis would account for the hepatomegaly and small joint arthropathy, but diabetes is very rarely a consequence. Typically there is a combination of symptoms such as fatigue, weight loss, peripheral oedema and polyneuropathy.

Reference:

Bokhoven MA, Deursen CT, Swinkels DW. Diagnosis and management of hereditary haemochromatosis. *BMJ* 2011;342:c7251.

Question

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Which of the following is the most likely diagnosis?

Your Answer

- Gout
- Haemochromatosis - This is the correct answer ✔

Next

Question

A 70-year-old woman presented with bone pains in her back, shoulders and pelvis. Investigations reveal:

Serum corrected calcium	2.2 mmol/L	(2.2-2.6)
Serum phosphate	0.6 mmol/L	(0.8-1.4)
Serum alkaline phosphatase	160 U/L	(45-105)

What further investigation would be most helpful in making the diagosis?

(Please select 1 option)

- DEXA bone scan
- Parathyroid hormone concentration
- Serum vitamin D concentration
- Thyroid function test
- Urine Bence Jones protein estimation

Answer Question

Explanation

The symptoms of proximal bone pain with hypocalcaemia and low phosphate suggest a diagnosis of osteomalacia in this elderly woman. Vitamin D concentrations should therefore be measured. Serum alkaline phosphatase is typically high as it is released from bone reflecting osteoblastic activity. Serum PTH is also usually elevated and normalises gradually on response to treatment.

Hypercalcaemia would be expected in multiple myeloma, hyperparathyroidism and hyperthyroidism.

A DEXA scan would assess the bone mineral density which allows osteoporosis to be diagnosed. Due to her age, this patient may have osteoporosis, but it is unlikely to be the cause of her pain. Classically, osteoporosis in the absence of fracture, does not cause pain. Many patients with osteoporosis have concomitant disorders such as osteomalacia and osteoarthritis which cause bone pain.

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- Parathyroid hormone concentration
- Serum vitamin D concentration - This is the correct answer ✔

Next

Question

A 30-year-old housewife with SLE had some blood tests.
Results of investigations are as follows:

Hb	121 g/L	(115-165)
WBC	8.9 $\times 10^9$/L	(4-11)
Neutrophils	84%	(40-75)
Platelet	90 $\times 10^9$/L	(150-400)
ESR	14 mm/hr	(0 - 20)
INR	1.1	(<1.4)
aPTT	48 seconds	(30 - 40s)

aPTT did not normalise after addition of normal plasma.
Blood film shows thrombocytopenia, no schistocytes. Urea, electrolytes, and creatinine are normal.
What is the most likely explanation for the abnormal aPTT?

(Please select 1 option)

- Antiphospholipid antibody syndrome
- Disseminated intravascular coagulation
- Haemolytic uraemic syndrome
- Idiopathic thrombocytopenic purpura
- Thrombotic thrombocytopenic purpura

Answer Question

This patient has antiphospholipid antibody syndrome which is a non-inflammatory pro-thrombotic state in vivo, in the presence of laboratory tests suggesting an anticoagulant state.

The antiphospholipid antibodies (anticardiolipin and lupus anticoagulant) cause coagulation defect in-vitro (raised aPTT which fails to correct after the addition of normal human plasma). However, despite the coagulation defects and thrombocytopenia, the lupus anticoagulant causes arterial and venous thromboses in vivo.

Disseminated intravascular clotting and thrombotic thrombocytopenic purpura are severe systemic illnesses, where bleeding may occur due to consumption of clotting factors, and platelets by an overactive clotting cascade.

Idiopathic thrombocytopenic purpura does not cause raised aPTT.

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Your Answer

Antiphospholipid antibody syndrome - This is the correct answer ✔

Next

Question

A 55-year-old homeless man presents with a six month history of periodic knee pains and aching legs. These have been occurring monthly and episodes last up to two weeks. He has noticed a 'bumpy' rash to his lower legs and complains of feeling more tired than usual. He has no significant past medical history.

He is currently reporting to a pharmacy daily for methadone.

Clinical examination demonstrated; pulse 88 (regular), normal heart sounds and chest sounds, painful but full active range of knee motion and palpable purpura to the lower extremities.

Blood tests revealed;

Hb	119 g/L	(130-180)
MCV	93 fL	(80-96)
WCC	9.8 $\times 10^9$/L	(4-11)
ALT	150 IU/L	(5-35)
AST	90 IU/L	(1-31)
Complement C4	64 mg/dL	(75-135)

Which test is most likely to assist you in the management of this man's illness?

(Please select 1 option)

- ANA
- Anti-CCP
- Cryoglobulin serology
- Hepatitis C serology
- Rheumatoid factor

Answer Question

Hb	119 g/L	(130-180)
MCV	93 fL	(80-96)
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Which test is most likely to assist you in the management of this man's illness?

Your Answer

- ANA
- Anti-CCP
- Cryoglobulin serology
- Hepatitis C serology - This is the correct answer ✔
- ✓ Rheumatoid factor - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The important learning points from this question are:

- Presentation of mixed cryoglobulinaemia (MCG)
- Risk factors for (MCG)
- Haematological profile of MCG.

This patient presents with palpable purpura, arthralgia and myalgia (that is, Meltzer's triad)[1] seen in cryoglobulinaemia (types II/III).

The diagnosis is made using historical accounts, skin purpura, hypocomplementaemia and demonstration of circulating cryoglobulins.

Type II (mixed essential) cryoglobulinaemia is closely associated with persistent hepatic infection (transaminitis, inferred IVDU) most commonly hepatitis C and to a lesser extent hepatitis B.

Management involves treating the underlying cause in the absence of any immediate life, organ or limb threatening complications. In this case with pegylated interferon alpha and ribavirin[2].

Reference:

1. Monti G, et al. Cryoglobulinaemias: a multi-centre study of the early clinical and laboratory manifestations of primary and secondary disease. GISC. Italian Group for the Study of Cryoglobulinaemias. *QJM* 1995;88:115-26.
2. Pascual M, et al. Hepatitis C virus in patients with cryoglobulinemia type II. *J Infect Dis.* 1990;162:569.

Question

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He is currently reporting to a pharmacy daily for methadone.

Clinical examination demonstrated: pulse 88 (regular), normal heart sounds and chest

Next

Question

A 36-year-old man attends clinic for advice. He is currently taking methotrexate 7.5 mg weekly. His wife is fit and well, with no past medical history of note and not taking any medication apart from the oral contraceptive pill.

They are keen to start a family and want to know about continued contraception and whether there is a need to stop methotrexate.

Which of the following would you advise?

(Please select 1 option)

- They can dispense with contraception now and the husband can continue with the methotrexate
- They can dispense with contraception now but the husband needs to stop taking methotrexate
- They should continue with adequate contraception for at least four weeks after the husband stops the methotrexate
- They should continue with adequate contraception for at least three months after the husband stops the methotrexate
- They should continue with adequate contraception for at least one year after the husband stops the methotrexate

Answer Question

Methotrexate is teratogenic and, according to the British National Formulary (BNF), the manufacturers advise effective contraception during, and for at least three months, after stopping methotrexate. Fertility may be reduced during treatment, but this usually reverses upon stopping. Advice regarding reduced fertility and potential teratogenicity applies to both females and males who are taking methotrexate.

There is little published information on the potential teratogenicity following paternal exposure to methotrexate. There have, however, been reports of alterations of the spermatozoa and oligospermia following exposure to methotrexate. These seem to be reversible on cessation of treatment.

The National Patient Safety Agency (NPSA) state on their patient held record that: "It is recommended that men wait six months after finishing their treatment, before trying to father a child as sperm can be affected". Paternal exposure to methotrexate is not regarded as an indication for termination of pregnancy, however.

Question

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They are keen to start a family and want to know about continued contraception and whether there is a need to stop methotrexate.

Which of the following would you advise?

Your Answer

- They can dispense with contraception now and the husband can continue with the methotrexate
- They can dispense with contraception now but the husband needs to stop taking methotrexate
- They should continue with adequate contraception for at least four weeks after the husband stops the methotrexate
- They should continue with adequate contraception for at least three months after the husband stops the methotrexate -
 This is the correct answer ✔

Next

Question

Which of the following is a recognised feature of polymyalgia rheumatica?

(Please select 1 option)

- A peak incidence in the fourth decade of life
- An association with bronchial carcinoma
- Elevated serum creatine phosphokinase activity
- Weakness of distal muscle groups
- Weight loss

Answer Question

Reference:

1. Ghosh P, Borg FA, Dasgupta B. Current understanding and management of giant cell arteritis and polymyalgia rheumatica. *Expert Rev Clin Immunol.* 2010;6:913-28.
2. Michet CJ, Matteson EL. Polymyalgia rheumatica. *BMJ* 2008;336:765-769.

Question

Which of the following is a recognised feature of polymyalgia rheumatica?

Your Answer

- A peak incidence in the fourth decade of life
- An association with bronchial carcinoma
- Elevated serum creatine phosphokinase activity
- Weakness of distal muscle groups
- ✓ Weight loss - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

Polymyalgia rheumatica (PMR) is an inflammatory disease which typically presents with pain and stiffness of the the shoulder and pelvic girdle muscles.

It can have either an acute or subacute onset and is associated with a systemic inflammatory response and therefore constitutional symptoms such as fever, anorexia, weight loss and malaise. Muscle weakness is not a feature of PMR, but this can be difficult to assess in the presence of pain. Due to chronic inflammation, low-grade fever and weight loss are often present. Weight gain is unusual, and peripheral joints are only rarely affected.

The course of the disease is unpredictable, and 30% of patients also have giant cell arteritis.

The cause is unknown, although studies showing a cyclical incidence have led to theories regarding an infectious trigger. Diagnosis of PMR can prove difficult, and other inflammatory conditions should be excluded.

Patients are usually over 60 years, and PMR is very rarely seen in the under 50s.

Bronchial carcinoma can cause hypertrophic pulmonary osteoarthropathy, which shares some of the features of PMR, but is not a classic association.

Investigations typically reveal:

- Normochromic / normocytic anaemia
- Raised erythrocyte sedimentation rate (ESR) often > 50 mm/hr (although this may be normal)
- Raised C reactive protein (CRP), and
- Raised creatine phosphokinase would suggest polymyositis rather than polymyalgia rheumatica.

Features of giant cell arteritis should be sought:

- Headache
- Visual disturbance
- Jaw claudication
- Thickened and tender temporal arteries.

Response to a moderate dose of steroids can be useful in confirming the diagnosis of PMR. The maximum dose of prednisolone should not exceed 20 mg once daily. Patients should report 70% improvement in symptoms within three to four weeks, and inflammatory markers should have normalised by this point.

In general, non-steroidal anti-inflammatories have little use and are associated with significant morbidity. There is little evidence for the use of steroid-sparing agents.

Reference:

Next

Question

A 44-year-old woman has a three-month history of progressive pain, swelling, and stiffness in both wrists, and the majority of her metacarpophalangeal joints (MCPJs). The symptoms are worse in morning, and it takes an hour to loosen up her joints.

There has been no recent illness and there is no personal or family history of chronic skin conditions. She drinks alcohol occasionally.

On examination, there is synovitis in both wrists and MCPJs. Examination of skin, nails and other joints is normal.

These are results of recent blood tests:

Haemoglobin	131 g/L	(115-165)
WBC	8.2 $\times 10^9$/L	(4-11)
Neutrophils	5.1 $\times 10^9$/L	(1.5-7.0)
Platelets	280 $\times 10^9$/L	(150-400)
ESR	48 mm/hr	(0-20)
Rheumatoid factor	positive (1:256)	(<30 k IU/L)
Urea, electrolytes and creatinine	Normal	

What most appropriate first step in her long-term management?

(Please select 1 option)

- Anti-TNF α agents
- Disease modifying antirheumatic drugs
- Intra-articular corticosteroids
- NSAIDs
- Oral corticosteroids

Answer Question

Haemoglobin	131 g/L	(115-165)
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Urea, electrolytes and creatinine	Normal	

What most appropriate first step in her long-term management?

Your Answer

- Anti-TNF α agents
- Disease modifying antirheumatic drugs - This is the correct answer ✔
- Intra-articular corticosteroids
- NSAIDs
- ✓ Oral corticosteroids - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Explanation

The symptoms, signs, and blood results described above suggest a diagnosis of rheumatoid arthritis (RA).

Rheumatoid arthritis is a complex disease which has many manifestations, and management should attempt to address all aspects. The British Society of Rheumatology has published guidelines on the management of RA within the first two years.

These state that a diagnosis of RA should be made as early as possible, on the basis of persistent joint inflammation affecting at least three joints with early morning stiffness of at least 30 minutes. Such patients should have rapid access to a specialist team who can help to plan care, including training patients to self-manage some aspects of their disease. Specialist rheumatology nurses have a critical role to play within this team, as do physiotherapists, podiatrists, occupational therapists, and occasionally psychologists.

If treatment is warranted, the first step is DMARD therapy (disease modifying anti-rheumatic drugs). All patients should have their disease and its impact assessed and documented at onset, prior to starting DMARD therapy. Treatment should then be started as soon as possible after the diagnosis is made, ideally within three months of the onset of persistent symptoms.

The most commonly used DMARD is methotrexate. Such treatment should be part of an aggressive package of care, including escalating doses, intra-articular steroids, parenteral methotrexate and combination therapy. Once established on DMARD therapy, all patients should have a formal assessment of treatment response, or lack of it, in order to justify continuing therapy or changing it. These assessments can include measurement of CRP and disease activity scores such as DAS28. Remission should be documented prior to reducing therapy.

In addition to managing the musculoskeletal aspects of disease, it must not be forgotten that RA is a significant independent risk factor for ischaemic heart disease, and other risk factors should also be aggressively controlled.

Systemic steroids can have an important role in establishing disease control, or bridging gaps between different DMARD therapies, but long-term use is not justified. Intra-articular corticosteroid injections may be considered for symptom control during a mono- or oligo-articular flare of RA. This is a useful adjunct to therapy but is not appropriate long-term management in itself.

Long-term used of NSAIDs should be at the lowest effective dose and should be avoided in those with high cardiovascular risk.

Surgery may be indicated if any of the following persist, despite optimum medical therapy:

- persistent pain as a result of joint or soft tissue damage
- worsening joint function
- progressive deformity

Next

Surgery may be indicated if any of the following persist, despite optimum medical therapy:

- persistent pain as a result of joint or soft tissue damage
- worsening joint function
- progressive deformity
- persistent localised synovitis
- imminent or actual tendon rupture
- nerve compression, or
- stress fracture

There is little evidence for the long-term efficacy of dietary change, or complementary therapies, although a Mediterranean diet should be recommended. Patients should be helped to contact support organisations. The role of fatigue should be recognised and managed. Aerobic exercise should be encouraged.

Over recent years, biological agents (especially inhibitors of tumour necrosis factor) have been developed. In the United Kingdom, anti-tumour necrosis factor (TNF) agents are used for the treatment of RA only if the patient fails to respond to an adequate trial of two DMARDs (eg. lefunomide, methotrexate, sulfasalazine). However, even with these, the frequency and degree of responses are restricted. Newer agents are therefore being introduced, including rituximab (anti-CD20), abatacept (cytotoxic T-lymphocyte antigen 4 immunoglobulin) and tocilizumab (anti-interleukin 6 receptor).

Reference:

1. Deighton C, et al. Management of rheumatoid arthritis: summary of NICE guidance. *BMJ.* 2009;338:b702.
2. Luqmani R, et al. British Society for Rheumatology and British health professionals in Rheumatology guideline for the management of rheumatoid arthritis (the first two years). *Rheumatology (Oxford).* 2006;45:1167-9.
3. Smolen JS, et al. New therapies for treatment of rheumatoid arthritis. *Lancet.* 2007;370:1861-74.

Question

A 44-year-old woman has a three-month history of progressive pain, swelling, and stiffness in both wrists, and the majority of her metacarpophalangeal joints (MCPJs). The symptoms are worse in morning, and it takes an hour to loosen up her joints.

There has been no recent illness and there is no personal or family history of chronic skin

Next

Question

A 80-year-old man presents with deteriorating lumbar and bilateral hip pains. He has recently been seen by his GP with symptoms of prostatism.
Full blood count is normal. Other investigations revealed:

Corrected calcium	2.3 mmol/L	(2.2-2.6)
ESR	22 mm/1st hr	(1-10)
Alkaline phosphatase	985 U/L	(60-110)
Gamma-GT	33 U/L	(<50)
Prostate specific antigen	6.6 pg/L	(0-6)

What is the most likely cause of this man's pain?

(Please select 1 option)

- Multiple myeloma
- Osteomalacia
- Paget's disease of the pelvis
- Polymyalgia rheumatica (PMR)
- Prostatic carcinoma with metastases

Answer Question

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Your Answer

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- Osteomalacia
- Paget's disease of the pelvis - This is the correct answer ✔
- Polymyalgia rheumatica (PMR)
- ✓ Prostatic carcinoma with metastases - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This elderly patient presenting with bone pains has elevated alkaline phosphatase with normal calcium concentrations suggesting a diagnosis of Paget's disease.

The slightly elevated PSA is in keeping with benign prostatic hypertrophy rather than prostatic malignancy where a PSA of above 10 would be expected in widespread disease.

The normal calcium and only slightly elevated erythrocyte sedimentation rate (ESR) argues against osteomalacia, myeloma and PMR.

Regarding Paget's disease:

- Increased bone turnover gives disordered bone formation, abnormal remodelling and deformity
- Typically affects elderly patients
- Can be asymptomatic
- Symptoms include deafness, bone pain, breathlessness due to high-output cardiac failure (rare) and nerve compression
- Complications include pathological fractures and there is a small risk of developing osteosarcoma.

Treatment is with bisphosphonates and analgesia.

Question

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Next

Question

A young woman has acne and is taking oral medication. She develops polyarthritis and has raised liver enzyme tests.
Investigations show:

AST	95 U/L	(1-31)
ALT	170 U/L	(5-35)
Bilirubin	16 µmol/L	(1-22)
Antinuclear antibodies	Strongly positive at 1/20	
	Negative at 1/640	

Which of the following drugs is she most likely to have been prescribed?

(Please select 1 option)

- Erythromycin
- Isotretinoin
- Minocycline
- Oxytetracycline
- Trimethoprim

Answer Question

3. Porter D, Harrison A. Minocycline-induced lupus: a case series. *N Z Med J.* 2003;116:U384.
4. Vedove CD, et al. Drug-induced lupus erythematosus. *Arch Dermatol Res.* 2009;301:99-105.

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- Minocycline - This is the correct answer ✔
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Next

Incorrect

Explanation

All other drugs listed above can be used in the treatment of acne. All of these can cause hepatotoxicity, and therefore raised alanine aminotransferase (ALT) and aspartate aminotransferase (AST).

Minocycline is the only drug listed which can account for the polyarthritis and antinuclear antibody (ANA), due to its ability to cause drug-induced lupus erythematosus.

Classically, drug-induced lupus erythematosus is characterised by

- Systemic disease with a lower incidence of nephritis
- Lack of cutaneous involvement and
- The presence of antihistone antibodies[1].

The most commonly associated drugs have historically been procainamide and hydralazine 2, although their use is now decreasing. Medications associated more recently include the anti-TNF alpha agents, statins and minocycline.

Minocycline is unusual in that it seems to be associated with the development of long term immunological memory, and therefore exacerbation of symptoms within 12-24 hours of rechallenge[2].

Minocycline has been well documented as a cause of drug-induced systemic lupus erythematosus (SLE). Characteristically, the erythrocyte sedimentation rate (ESR) and C reactive protein (CRP) are both markedly elevated, the ANA is strongly positive and there is a hypergammaglobulinaemia.

Anti-dsDNA antibodies are usually negative; antihistone antibodies are positive in 95% of drug-induced lupus (but also 50-80% of idiopathic SLE3).

A strongly positive ANA is a risk factor for developing drug-induced lupus, but a negative ANA would not exclude the diagnosis[2].

Drug-induced lupus is defined as a lupus-like syndrome temporally related to continuous drug exposure which resolves after discontinuation of the offending drug[4].

There are several features which distinguish drug-induced lupus from idiopathic SLE:

- Males and females are equally affected in drug-induced lupus, whereas idiopathic SLE affects females nine times more frequently[3].
- Caucasians are affected by drug-induced lupus more commonly than Afro-Caribbeans, whereas the inverse is true of idiopathic SLE

Next

females nine times more frequently[3].

- Caucasians are affected by drug-induced lupus more commonly than Afro-Caribbeans, whereas the inverse is true of idiopathic SLE.
- In addition, the age of onset is typically older in drug-induced lupus, but this depends on the age at drug exposure.
- Fever, arthralgia, serositis and ANA occur at least as frequently in drug-induced lupus as idiopathic SLE.
- Haematological, renal and central nervous system (CNS) involvement, and double-stranded DNA autoantibodies are rare[3].

The pathogenesis of drug-induced lupus is unclear. Factors that influence drug metabolism, such as acetylator status, have been implicated. In addition, lupus-inducing drugs have been shown to generate a variety of cytotoxic products on exposure to MPO released from activated neutrophils[2].

The time taken for symptoms to resolve after stopping minocycline is highly variable, from a few days to two years[3]. Typically, no further treatment is required but there are situations where corticosteroids or disease modifying antirheumatic drugs (DMARDs) are required to aid resolution[3].

Reference:

1. Srivastava M, et al. Drug-induced, Ro/SSA-positive cutaneous lupus erythematosus. *Arch Dermatol.* 2003;139:45-9.
2. Lawson TM, et al. Minocycline-induced lupus: clinical features and response to rechallenge. *Rheumatology (Oxford).* 2001;40:329-35.
3. Porter D, Harrison A. Minocycline-induced lupus: a case series. *N Z Med J.* 2003;116:U384.
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Next

Question

A 39-year-old female presents with weakness, diplopia and fatigue.
She had recently been diagnosed with rheumatoid arthritis.
On examination there is bilateral ptosis and weakness of abduction of both eyes and mild proximal weakness of the arms and legs but normal reflexes and sensation.
What is the most likely diagnosis?

(Please select 1 option)

- Guillain-Barré syndrome
- Mononeuritis multiplex
- Multiple sclerosis
- Myasthenia gravis
- Polymyositis

Answer Question

The most likely diagnosis is myasthenia gravis.

There is an association between myasthenia gravis and thyroid disease, pernicious anaemia, systemic lupus erythematosus and rheumatoid arthritis. The condition is more common in women with a peak incidence around the age of 30. It is characterised by weakness and fatigability of the proximal limb muscles, ocular and bulbar muscles.

Seventy five per cent of patients initially complain of ocular disturbance, mainly ptosis and diplopia. Reflexes are initially preserved but may be fatigable. In Guillain-Barré syndrome there is a post-infective weakness and numbness in the distal limbs which ascends over days and weeks.

Multiple sclerosis can produce a variety of neurological symptoms. Common ophthalmic presentations include optic neuritis and internuclear ophthalmoplegia.

Mononeuritis multiplex describes an asymmetric asynchronous sensory and motor peripheral neuropathy, involving at least two separate nerve areas. It can be caused by a number of different disorders, including diabetes, vasculitis, Lyme disease and sarcoidosis.

Polymyositis classically presents with relatively painless progressive proximal muscle weakness. Dysphagia is common but the ocular muscles are very rarely involved unlike myasthenia gravis where this is a predominant feature.

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What is the most likely diagnosis?

Your Answer

- Guillain-Barré syndrome
- Mononeuritis multiplex
- Multiple sclerosis
- Myasthenia gravis - This is the correct answer ✔

Next

Question

A 21-year-old woman presents with a six month history of bilateral wrist pain, generalised aching, morning stiffness and an intermittent subjective fever.

She has a medical history of grade 4 acne, which she states has become worse over her nasal bridge and cheeks despite being commenced on minocycline one year ago. She tells you that her mother has rheumatoid arthritis.

An autoimmune screen demonstrated positivity for ANA, P-ANCA and anti-DNA histone; negative anti-ds DNA antibody; normal complement C3, C4 levels.

Which of the following should be your first management step?

(Please select 1 option)

- 15 mg methotrexate
- 80 mg methylprednisolone
- 400 mg hydroxychloroquine
- 500 mg naproxen BD
- Stop minocycline

Answer Question

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- 80 mg methylprednisolone
- 400 mg hydroxychloroquine
- 500 mg naproxen BD
- ✓ Stop minocycline - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

The important learning points from this question are:

- Presentation of drug-induced lupus
- Common drug culprits
- Autoantibody profile, and
- Management of drug-induced lupus.

Drug-induced lupus can occur in susceptible patients or those with underlying lupus, secondary to drugs which induce the development of ANA antibodies. It usually occurs in the sixth decade (except in young patients being treated for acne with minocycline[1]).

Common drug culprits are:

- Procainamide
- Hydralazine
- Isoniazid, and
- Anti-TNF medications (infliximab and etanercept).

In contrast to idiopathic systemic lupus erythematosus (SLE), drug-induced lupus is almost never seen in Afro-Caribbean patients.

Antihistone antibodies are present in 90% of cases (cf. idiopathic SLE 80%)[2].

In contrast to idiopathic SLE, anti-Smith and anti-ds DNA antibodies are rare, complement levels are normal and there is a M:F ratio of 1:1.

Resolution of symptoms usually occurs within one to seven months of withdrawing the offending drug.

Reference:

1. Gough A, et al. Minocycline induced autoimmune hepatitis and systemic lupus erythematosus-like syndrome. *BMJ* 1996;312:169.
2. Yung RL, et al. New concepts in the pathogenesis of drug-induced lupus. *Lab Invest* 1995;73:746.

Next

Question

A 25-year-old woman with Sjogren's syndrome (dry eyes, dry mouth, anti-Ro/La positive) is 32 weeks pregnant.
Which of the following is a risk to the fetus?

(Please select 1 option)

- Complete heart block
- Congestive cardiac failure (CCF)
- Hydrops fetalis
- Neonatal lupus
- All of the above

Answer Question

Correct

Explanation

Anti-Ro, and anti-La antibodies cross the placenta, and cause fetal AV nodal conduction defect, which may progress to complete heart block. This may be complicated by CCF, and hydrops fetalis.

Neonatal lupus presents as erythematous macular rash on face or trunk, which may be photosensitive.

Permanent pacemaker is required for the treatment of complete heart block.

On the other hand, neonatal lupus is a transient self-resolving illness due to passively transmitted maternal antibodies.

Question

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Which of the following is a risk to the fetus?

Your Answer

- Complete heart block
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- Hydrops fetalis
- Neonatal lupus
- ✓ All of the above - Correct ✔

Next

Question

A 50-year-old woman presents with dry eyes, a dry mouth, an erythematous rash and polyarthralgia.
Investigations show:

Anti-nuclear antibody	Strongly positive (1:1600)
Anti-Ro/SSA antibodies	Strongly positive
Rheumatoid factor	Positive
IgG	45 g/L (<15)
IgM	Normal
IgA	Normal
Kappa/lambda ratio	Normal

What is the most likely diagnosis?

(Please select 1 option)

- Hyperviscosity syndrome
- Myeloma associated vasculitis
- Primary Sjögren's syndrome
- Rheumatoid arthritis with secondary Sjögren's syndrome
- Systemic lupus erythematosus

Answer Question

Anti-nuclear antibody	Strongly positive (1:1600)
Anti-Ro/SSA antibodies	Strongly positive
Rheumatoid factor	Positive
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Kappa/lambda ratio	Normal

What is the most likely diagnosis?

Your Answer

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- Myeloma associated vasculitis
- Primary Sjögren's syndrome - This is the correct answer ✔
- Rheumatoid arthritis with secondary Sjögren's syndrome
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

The clinical features and the serology are typical of primary Sjögren's syndrome (occurs alone and more likely to have positive anti Ro SSA antibodies than secondary Sjögren's).

Hypergammaglobulinaemia is present in 80% of individuals.

The normal kappa/lambda ratio confirms the hypergammaglobulinaemia is polyclonal. Autoantibodies include rheumaroid factors, antinuclear antibodies, and multiple organ-specific antibodies (inc. antigastric parietal cells, thyroglobulin thyroid microsomal, mitochondrial, smooth muscle and salivary duct antibodies). Antibodies to Ro (SS-A) and La (SS-B) are also common. ANA and anti-Ro/SSA antibodies are present in approximately 90% of individuals as is a weakly positive rheumatoid factor.

Typically secondary Sjögren's has pre-existent rheumatoid or systemic lupus erythematosus before the development of Sjögren's symptoms.

Question

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Anti-Ro/SSA antibodies	Strongly positive
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IgM	Normal
IgA	Normal
Kappa/lambda ratio	Normal

What is the most likely diagnosis?

Next

Question

A 25-year-old female with systemic lupus erythematosus (SLE) attends at 20 weeks into her pregnancy for her routine obstetric appointment.

The fetal heart rate is 50 beats per minute. Fetal echocardiography shows complete heart block.

Which one of the following maternal autoantibodies is most specific for this situation?

(Please select 1 option)

- Anti-dsDNA
- Anti-Jo 1
- Anti-La (SSB)
- Anti-mitochondrial
- Anti-Ro (SSA)

Answer Question

Correct

Explanation

Anti-Ro antibody is associated with congenital complete heart block (CHB) accounting for the vast majority of cases of CHB.
Anti-mitochondrial antibody is associated with primary biliary cirrhosis.
Anti-dsDNA is associated with SLE rather than specific of HB.
Anti-La is associated with Sjögren's syndrome.
Anti-Jo is associated with polymyositis.

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- Anti-La (SSB)
- Anti-mitochondrial
- ✓ Anti-Ro (SSA) - Correct ✔

Next

Question

A 35-year-old female presents with a six month history of joint pain and stiffness of hands and feet.

Examination reveals a synovitis of the distal interphalangeal joints of the left index finger and the right ring finger together with the right wrist and ankle joints. Her ESR was 35 mm/hr (0-10).

Which one of the following conditions is most likely to exhibit this pattern of joint involvement?

(Please select 1 option)

- Osteoarthritis
- Psoriatic arthritis
- Reactive arthritis
- Rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

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A 35-year-old female presents with a six month history of joint pain and stiffness of hands and feet.

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Which one of the following conditions is most likely to exhibit this pattern of joint involvement?

Your Answer

- Osteoarthritis
- Psoriatic arthritis - This is the correct answer ✔
- Reactive arthritis
- Rheumatoid arthritis
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

This woman is most likely to have psoriatic arthritis.

Psoriatic arthritis has been subclassified according to different patterns of arthritis.

The rash typically predates the arthropathy by a number of years, but the opposite can be true. Small plaques should be looked for on the elbows and scalp.

There are five patterns of disease:

- Symmetrical polyarthritis ('rheumatoid pattern') - affects wrists, hands, feet and ankles. The distal interphalangeal joints are more commonly affected than the metacarpophalangeal joints, which helps to distinguish it from rheumatoid arthritis
- Asymmetrical oligoarticular arthritis: dactylitis
- Distal interphalangeal joint disease: typically in men
- Arthritis mutilans (rare)
- Spondylitic pattern with sacroileitis.

Osteoarthritis in this age group is unlikely.

Rheumatoid arthritis is a symmetrical arthritis typically affecting the metacarpophalangeal joints.

Arthritis does occur in systemic lupus erythematosus, however there are several other clinical features that form part of the diagnositic criteria, none of which are present here.

Reactive arthritis occurs following a gastrointestinal or genitourinary infection. It commonly affects the large joints.

Question

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Which one of the following conditions is most likely to exhibit this pattern of joint

Next

Question

A 23-year-old teacher presents with an eight month history of pain and stiffness in the lower back. This is worse in the morning and improves with activity, and with ibuprofen.

There is no significant past or family history. The Schober's test is positive. Sacroiliac joint MRI shows sacroiliitis and erosions. The FBC, UEC and liver function tests are normal.

What is the next step in his management?

(Please select 1 option)

- Anti-TNF α agents
- Methotrexate
- NSAIDs - regular
- Pamidronate
- Tramadol

Answer Question

Haroon N, Inman RD. Ankylosing spondylitis - new criteria, new treatments. *Bull NYU Hosp Jt Dis.* 2010;68:171-4.

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- ✓ Tramadol - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This patient has ankylosing spondylitis (AS), based on the history of back pain and stiffness which improves with activity.

The aim of treatment of AS is symptom control and maintenance of function. Physiotherapy is critical, and should be undertaken daily. There is limited evidence regarding any medication's ability to alter the course of disease.

Non-steroidal anti-inflammatory drugs (NSAIDs) should be started in all cases, unless contraindicated. Where symptoms are not controlled additional analgesics (for example, amitriptyline), corticosteroid injections or oral corticosteroids can be used.

Current NICE guidelines state that etanercept, golimumab and adalimumab can be used in patients with severe AS:

- That satisfy the modified New York criteria
- Have confirmed, sustained active spinal disease over at least 12 weeks
- In whom maximal conventional treatment with two or more NSAIDs has failed
- Where there are no contraindications present.

Infliximab is not recommended. The evidence for the use of other disease modifying antirheumatic drugs is weak.

Surgery is occasionally useful to correct spinal or joint deformities.

In the last few years evidence for additional agents has been growing. Another anti-TNF alpha agent, certolizumab, is under investigation. Rituximab is also being studied as a treatment.

Reference:

Haroon N, Inman RD. Ankylosing spondylitis - new criteria, new treatments. *Bull NYU Hosp Jt Dis.* 2010;68:171-4.

Question

A 23-year-old teacher presents with an eight month history of pain and stiffness in the lower back. This is worse in the morning and improves with activity, and with ibuprofen.

There is no significant past or family history. The Schober's test is positive. Sacroiliac joint

Next

Question

A 16-year-old girl presents with a three month history of polyarthralgia and marked early morning stiffness.

Her symptoms respond well to diclofenac but she is becoming increasingly concerned about her symptoms which appear to be progressing. She is otherwise well apart from a history of acne which is well controlled on minocycline. Her mother has severe rheumatoid arthritis.

Investigations reveal:

ESR	50 mm/hr	(0-20)
CRP	100 mg/L	(<10)
Rheumatoid factor	Negative	
ANA	Strongly positive (1:1600)	
Anti-dsDNA antibodies	Negative	
IgG	25 g/L	(<15)

What is the most likely cause?

(Please select 1 option)

- Drug-induced SLE
- Fibromyalgia
- Rheumatoid arthritis
- Sero-negative spondyloarthropathy
- Systemic lupus erythematosus (SLE)

Answer Question

ESR	50 mm/hr	(0-20)
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IgG	25 g/L	(<15)

What is the most likely cause?

Your Answer

- Drug-induced SLE - This is the correct answer ✔
- Fibromyalgia
- Rheumatoid arthritis
- Sero-negative spondyloarthropathy
- ✓ Systemic lupus erythematosus (SLE) - Incorrect answer selected ✖

Rate this question

Next

The history strongly suggests inflammatory problems and the elevated erythrocyte sedimentation rate (ESR) and C reactive protein (CRP) confirm this.

Rheumatoid arthritis and connective tissue disorders such as systemic lupus erythematosus (SLE) would be on the differential diagnosis.

The serology is atypical for rheumatoid arthritis and the marked elevation of the CRP would be very unusual for SLE where characteristically CRP elevation indicates underlying bacterial infection or widespread serositis.

The most likely diagnosis is drug-induced lupus erythematosus. Classically, this is characterised by systemic disease with a lower incidence of nephritis, lack of cutaneous involvement and the presence of anti-histone antibodies.[1] The most commonly associated drugs have historically been procainamide and hydralazine, although their use is now decreasing. Medications associated more recently include the anti-TNF alpha agents, statins and minocycline. Minocycline is unusual in that it seems to be associated with the development of long-term immunological memory, and therefore exacerbation of symptoms within 12-24 hours of rechallenge.[2]

Minocycline has been well documented as a cause of drug-induced SLE. Characteristically, the ESR and CRP are both markedly elevated, the ANA is strongly positive and there is a hypergammaglobulinaemia. Anti-dsDNA antibodies are usually negative; anti-histone antibodies are positive in 95% of drug-induced lupus (but also 50-80% of idiopathic SLE).[3] A strongly positive ANA is a risk factor for developing drug-induced lupus, but a negative ANA would not exclude the diagnosis.[2]

Drug-induced lupus is defined as a lupus-like syndrome temporally related to continuous drug exposure which resolves after discontinuation of the offending drug.[4] There are several features which distinguish drug-induced lupus from idiopathic SLE. Males and females are equally affected in drug-induced lupus, whereas idiopathic SLE affects females nine times more frequently.[3] Caucasians are affected by drug-induced lupus more commonly than Afro-Caribbeans, whereas the inverse is true of idiopathic SLE. In addition, the age of onset is typically older in drug-induced lupus, but this depends on the age at drug exposure. Fever, arthralgia, serositis and ANA occur at least as frequently in drug-induced lupus as idiopathic SLE; haematological, renal and CNS involvement, and double-stranded DNA autoantibodies are rare.[3]

The pathogenesis of drug-induced lupus is unclear. Factors that influence drug metabolism, such as acetylator status, have been implicated. In addition, lupus-inducing drugs have been shown to generate a variety of cytotoxic products on exposure to MPO released from activated neutrophils.[2]

The time taken for symptoms to resolve after stopping minocycline is highly variable, from a few days to two years. Typically, no further treatment is required but there are situations where corticosteroids or DMARDs are required to aid resolution[3].

Reference:

Next

Question

You are seeing a patient with rheumatoid arthritis in clinic.
You are keen to commence methotrexate. Before consenting to start the treatment your patient wants to know how often she is going to require blood tests.
What will you advise her?

(Please select 1 option)

- FBC, coagulation screen, LFT and ESR at baseline and then weekly until on stable dose of methotrexate and then every three months.
- FBC, coagulation screen, U&E and rheumatoid factor weekly, includes baseline levels.
- FBC, LFT and U&E at baseline and then two weekly until on stable dose of methotrexate and then every month.
- FBC, LFT and U&E monthly, including baseline levels.
- FBC, uric acid, folate levels, U&E and LFT at baseline and then weekly until on stable dose of methotrexate and then every two to three months.

Answer Question

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 This is the correct answer ✔
- FBC, LFT and U&E monthly, including baseline levels.
- ✓ FBC, uric acid, folate levels, U&E and LFT at baseline and then weekly until on stable dose of methotrexate and then every two to three months. -
 Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Methotrexate is a potent immunosuppressant and therefore has many potential side effects about which patients need to be counselled and the clinician aware.

There have been cases of fatal blood dyscrasias with bleeding and severe bone marrow suppression, putting patients at risk of severe infection. Liver cirrhosis and toxicity are other possible complications. These toxic effects can be reduced by the concurrent use of folic acid (except on the day of taking the methotrexate).

Methotrexate can also cause lung fibrosis.

Patients are therefore advised to seek medical advice if they have sore throat and illness, easy bruising or bleeding, shortness of breath, abdominal pain and vomiting or jaundice. It should be documented in patient notes that this advice has been given.

The current recommendation is that FBC, U&Es and LFTs are checked at baseline and then two-weekly until the dose and monitoring is stable for 6 weeks. These should then be checked monthly until the dose and disease is stable for a year. After this monitoring can be reduced to every two to three months if advised by a specialist.

Methotrexate should be stopped immediately if there is a clinically significant drop in white cell count or platelet count.

If there is derangement of LFTs it should also be stopped, but may be reintroduced after a couple of weeks if the LFTs normalise, but only under specialist advice.

Question

You are seeing a patient with rheumatoid arthritis in clinic.

You are keen to commence methotrexate. Before consenting to start the treatment your patient wants to know how often she is going to require blood tests.

What will you advise her?

Your Answer

FBC, coagulation screen, LFT and ESR at baseline and then weekly until on stable dose of

Next

Question

A 66-year-old man has a painful, swollen right knee and difficulty in walking which he has had for three days.

He had two self-limiting episodes of severe pain and swelling in the right big toe in the last year.

A knee aspirate shows no organisms on Gram stain, plenty of leucocytes, and negatively birefringent crystals on polarised light microscopy. Recent blood tests show a normal renal function, and a raised serum urate 452 µmol/l (210-415).

Once the acute attack of gout has subsided, which of the following is the most appropriate drug in his long term management ?

(Please select 1 option)

- Allopurinol
- Corticosteroids
- Dietary advice
- Febuxostat
- Ibuprofen

Answer Question

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Your Answer

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- Corticosteroids
- Dietary advice
- Febuxostat
- ✓ Ibuprofen - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Gout is the most prevalent form of inflammatory arthropathy. It is caused by the deposition of monosodium urate crystals with resultant inflammation in the involved joint.

Allopurinol is indicated in those with

- More than two episodes of acute gout in a year
- Tophaceous gout
- Uric acid stones or
- Renal insufficiency.

Starting treatment with allopurinol leads to changes in serum uric acid levels, which can mobilise intra-articular urate crystals, thereby triggering episodes of acute gout. In order to prevent these attacks of gout, patients starting allopurinol (or other urate lowering therapy) should be co-prescribed colchicine 500 microgram bd for six months.

If there are contraindications to colchicine, or if it is not well tolerated, they should be commenced on NSAIDs/COX 2 inhibitors for a period of six weeks. The duration of treatment with NSAIDs/COX 2 inhibitors is shorter due to a higher risk of side effects than with colchicine. However, individual patients may require a longer course of treatment.

Febuxostat is a non-purine selective inhibitor of xanthine oxidase. It is recommended in cases of allopurinol hypersensitivity or intolerance.

Oral, intramuscular or intra-articular corticosteroids are effective in the control of acute gout. Prolonged corticosteroid use has significant side effects and is not indicated in the long term management of gout.

Similarly, ibuprofen may be used to treat acute gout, but has no role in the long term management of gout.

Question

A 66-year-old man has a painful, swollen right knee and difficulty in walking which he has had for three days.

He had two self-limiting episodes of severe pain and swelling in the right big toe in the last year.

Next

Question

A 68-year-old Muslim woman is found, on routine blood testing, to be hypocalcaemic and hypophosphataemic.

On further questioning she admits to having some worsening weakness over the last nine months but has put this down to ageing.

Which is the optimal treatment for the condition described above?

(Please select 1 option)

- Calcium supplementation
- Increased dietary calcium
- Increased sunlight exposure
- Phosphate supplementation
- Vitamin D supplementation

Answer Question

Explanation

This lady's symptoms and blood findings suggest that she has osteomalacia as result of low vitamin D levels. This is relatively common in the UK, where there is a lack of sunlight, especially in people who cover up when outdoors (e.g. due to religious beliefs).

Vitamin D supplementation is likely to improve her symptoms and correct her hypocalcaemia and hypophosphataemia.

Replacement with calcium or phosphate will not solve the underlying condition, and will therefore not resolve her symptoms. This is the same for increasing calcium intake in her diet.

Suggesting that she has more exposure to sunlight may improve her symptoms, but not immediately, and may also be difficult to achieve in the UK.

Question

A 68-year-old Muslim woman is found, on routine blood testing, to be hypocalcaemic and hypophosphataemic.

On further questioning she admits to having some worsening weakness over the last nine months but has put this down to ageing.

Which is the optimal treatment for the condition described above?

Your Answer

- Calcium supplementation
- Increased dietary calcium
- Increased sunlight exposure
- Phosphate supplementation
- ✓ Vitamin D supplementation - Correct ✔

Next

Question

A 47-year-old woman presented with a history several years of dysphagia, hard calcified nodules in the fingers, and cold hands.
Examination revealed calcified nodules, sclerodactyly, and facial telangiectasia.
Which one of the following antibodies is most likely to be found in the blood?

(Please select 1 option)

- Anticardiolipin
- Anticentromere
- Anti-DNA antibodies
- Antimitochondrial
- Antimyeloperoxidase

Answer Question

Hamaguchi Y. Autoantibody profiles in systemic sclerosis: predictive value for clinical evaluation and prognosis. *J Dermatol.* 2010;37:42-53.

Question

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Your Answer

- Anticardiolipin
- Anticentromere - This is the correct answer ✔
- Anti-DNA antibodies
- Antimitochondrial
- ✓ Antimyeloperoxidase - Incorrect answer selected ✖

Rate this question



Next

Explanation

This patient has features of CREST syndrome, making systemic sclerosis the most likely diagnosis.

Systemic sclerosis is a chronic autoimmune disease characterised by increased fibroblast activity and fibrosis in a number of different organ systems. Ninety to 95% of patients have positive antinuclear antibodies.

There are two major subtypes:

- limited cutaneous, and
- diffuse cutaneous.

CREST syndrome is an older term for the limited cutaneous form (calcinosis, Raynauds' phenomenon, oeosophageal dysmotility, sclerodactyly, telangiectasia).

Patients with systemic sclerosis can present with the following:

- skin abnormalities
- musculoskeletal changes
- gastrointestinal complications
- pulmonary disease
- renal crisis, and
- dry eyes and mouth.

A number of autoantibodies against extractable nuclear antigens can be detected in patients with systemic sclerosis. Anticentromere antibodies and antitopoisomerase I antibodies are the classic autoantibodies associated with the disease.

Anticentromere antibodies are linked with limited cutaneous involvement and isolated pulmonary hypertension, and a good prognosis, whereas antitopoisomerase I is linked with diffuse skin disease and pulmonary fibrosis and a higher mortality.

Additional autoantibodies which can be detected are antiRNA polymerase, antiU3RNP, antiKu, and antiU1RNP.

Anticardiolipin antibodies are seen in antiphospholipid syndrome.

AntiDNA antibodies are associated with systemic lupus erythematosus.

Antimitochondrial antibodies are seen in primary bilary cirrhosis.

Antimyeloperoxidase antibodies are also referred to as pANCA, and can be seen in a variety of vasculitides.

Reference:

Next

Question

A 30-year-old woman who is 12 weeks pregnant presents with a history of systemic lupus erythematosus (SLE).
With regard to SLE in pregnancy, which of the following is correct?

(Please select 1 option)

- Azathioprine can be continued in pregnancy
- Fertility rates are lower in SLE than in the general population
- If anti-Ro and anti-La antibodies are negative, there is a higher risk of congenital heart block associated with SLE
- It is necessary to stop hydroxychloroquine if breast-feeding
- Risk of pre-eclampsia is the same as in the general population

Answer Question

Incorrect

Explanation

Prednisolone and hydroxychloroquine may be taken whilst breast-feeding. Azathioprine, cyclophosphamide, methotrexate and cyclosporin A are contraindicated in breast-feeding mothers.

In general, SLE does not affect the fertility of patients. However, fertility may be adversely affected in specific subgroups of patients such as those with renal failure, cyclophosphamide treatment, very active disease or high dose corticosteroids.

Anti-Ro and anti-La antibodies are associated with increased risk of congenital heart block. The risk is greater with anti-Ro positivity than anti-La positivity. The risk of congenital heart block in the presence of anti-Ro may be up to 5%.

Stopping any unnecessary drugs is advisable in pregnancy, however use of azathioprine, hydroxychloroquine and prednisolone in pregnancy is considered safe if these are necessary for treatment of the mother's disease.

Risk of pre-eclampsia is increased in SLE. It may be difficult to differentiate between pre-eclampsia and renal flare of SLE, and both may coexist. Differentiating features include raised anti-dsDNA antibody, decreased complement levels (C3 and C4) and response to steroids in the case of renal flare.

Question

A 30-year-old woman who is 12 weeks pregnant presents with a history of systemic lupus erythematosus (SLE).

With regard to SLE in pregnancy, which of the following is correct?

Your Answer

- Azathioprine can be continued in pregnancy - This is the correct answer ✔
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Next

Question

A 22-year-old female presents with a six month history of increasing fatigue and arthralgia of the wrists and ankles. More recently, she has also noted a symmetrical rash on her cheeks and some hair loss.

Which is the most likely diagnosis?

(Please select 1 option)

- Dermatomyositis
- Hypothyroidism
- Porphyria cutanea tarda
- Scleroderma
- Systemic lupus erythematosus (SLE)

Answer Question

This woman has clinical features consistent with systemic lupus erythematosus.

She gives a history of fatigue which occurs commonly in SLE. Arthralgia and arthritis are the most common presenting manifestations of SLE typically affecting the small joints of the hands, wrists, and knees. The symmetrical rash is the classical butterfly rash that occurs in a malar distribution. Alopecia is common and may be diffuse or patchy.

In dermatomyositis, there is proximal, symmetrical muscle weakness that progresses over weeks to months. The typical lilac papular rash occurs over the dorsum of the metacarpophalangeal (Gottron's papules), eyelids, elbows, and knees.

Hypothyroidism does not commonly result in a symmetrical facial rash.

The initial symptoms of scleroderma, now termed systemic sclerosis, tend to be non-specific and may consist of fatigue, weakness, and musculoskeletal complaints. Raynaud's phenomenon is an early symptom. Skin changes include telangiectasia, hyper- and hypo-pigmentation.

Porphyria cutanea tarda is either primary or secondary uroporphyrinogen decarboxylase deficiency. The commonest symptoms are cutaneous fragility and blistering of sun-exposed skin. There may also be urine discolouration.

Question

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Which is the most likely diagnosis?

Your Answer

- Dermatomyositis
- Hypothyroidism
- Porphyria cutanea tarda
- Scleroderma
- ✓ Systemic lupus erythematosus (SLE) - Correct ✔

Next

Question

A 52-year-old businessman presents to the Emergency department complaining of worsening pain in his right big toe and knee.

He has recently been diagnosed by his GP with gout, and you can see from the computer that his urate at the time was 0.55 mmol/L (0.18-0.42). Current medication is 300 mg of allopurinol per day. His past medical history inculdes Ulcerative colitis.

On examination he has severe pain and swelling over his right first MTP joint, consistent with gout.

What is the most appropriate management?

(Please select 1 option)

- Add colchicine to his regime
- Add naproxen to his regime
- Decrease allopurinol to 100 mg
- Decrease allopurinol to 200 mg
- Stop allopurinol for a few days

Answer Question

Incorrect

Explanation

Guidelines on the management of acute gout and advice on what to do with an acute attack of gout whilst on allopurinol exist in the summary of product characteristics (SPC) for the drug. These state that an acute flare whilst on allopurinol should not lead to cessation of the agent, but that it should be continued at the same dose, and a suitable non-steroidal anti-inflammatory agent added.

Colchicine is a reasonable alternative but is known to precipitate diarrhoea when an efficacious dose is reached and in this case may worsen/ flare his IBD.

Further Reading:

Electronic Medicines Compendium. Allopurinol.

Question

A 52-year-old businessman presents to the Emergency department complaining of worsening pain in his right big toe and knee.

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What is the most appropriate management?

Your Answer

- Add colchicine to his regime
- Add naproxen to his regime - This is the correct answer ✔
- Decrease allopurinol to 100 mg

Next

Question

A 75-year-old female presents with hyperosmolar non-ketotic hyperglycaemia. She has a red, hot and swollen knee.

Which of the following is most useful in the diagnosis of the swollen knee joint?

(Please select 1 option)

- ANA
- CRP
- Joint aspiration
- Orthopaedic referral for joint washout
- Rheumatoid factor

Answer Question

Incorrect

Explanation

Joint aspiration is the best option in this context. It is a simple procedure with a high diagnostic yield. A destructive septic arthritis is a potential diagnosis and it must be excluded as a matter of urgency. Joint aspirate is the most crucial step in excluding a septic arthritis, and allows the timely commencement of surgical management and appropriate antibiotics.

Sending the joint aspiration for M/C/S in a blood culture bottle may increase yield. Whilst joint washout is appropriate management of septic arthritis, a diagnosis must be made prior to this being considered.

The risk of introducing infection into the knee joint during simple aspiration by non-experts is 1 in 10,000 procedures, so the procedure is safe.

Question

A 75-year-old female presents with hyperosmolar non-ketotic hyperglycaemia. She has a red, hot and swollen knee.

Which of the following is most useful in the diagnosis of the swollen knee joint?

Your Answer

- ANA
- CRP
- Joint aspiration - This is the correct answer ✔
- Orthopaedic referral for joint washout
- Rheumatoid factor - Incorrect answer selected ✖

Next

Question

June, a 45-year-old woman has had arthritis for 16 weeks. She has morning stiffness lasting two hours. The hands, wrists, right elbow and knees are swollen. She also complains of painful feet.

The ESR is 41 mm/hr and C reactive protein is 34 mg/L. The full blood count is normal.

Which antibody test would you request if you suspected that she had early rheumatoid arthritis?

(Please select 1 option)

- Antinuclear antibodies (ANA)
- Anticyclic citrullinated peptide antibodies (anti-CCP antibodies)
- Antineutrophil cytoplasmic antibodies (ANCA)
- Antiphospholipid antibodies
- Complement

Answer Question

Incorrect

Explanation

High titres of antinuclear antibodies (ANA) are associated with a large number of autoimmune diseases, most commonly systemic lupus erythematosus (SLE).

Anticyclic citrullinated peptide antibodies (anti-CCP antibodies) are highly specific and sensitive for rheumatoid arthritis and their titre correlates with erosive disease. Anticyclic citrullinated peptide antibodies should be used as one of the first line immunological investigations in suspected rheumatoid arthritis.

Antineutrophil cytoplasmic antibodies (ANCA) are more commonly associated with vasculitides which the history does not suggest in this case.

Antiphospholipid antibodies would be requested when the clinical presentation suggests a diagnosis of antiphospholipid syndrome.

Complement is not an antibody test. Levels are generally performed in specific cases, for example, cryoglobulinaemia and SLE.

Question

June, a 45-year-old woman has had arthritis for 16 weeks. She has morning stiffness lasting two hours. The hands, wrists, right elbow and knees are swollen. She also complains of painful feet.

The ESR is 41 mm/hr and C reactive protein is 34 mg/L. The full blood count is normal.

Which antibody test would you request if you suspected that she had early rheumatoid arthritis?

Your Answer

- Antinuclear antibodies (ANA)
- Anticyclic citrullinated peptide antibodies (anti-CCP antibodies) - This is the correct answer ✔

Next

Question

A 24-year-old promising athlete is diagnosed with chronic fatigue syndrome.
Which of the following treatments is indicated?

(Please select 1 option)

- Graded exercise therapy
- Group therapy
- Prednisolone
- Seroxat
- Thyroxine

Answer Question

with mild CFS, within three to four months for moderate CFS and immediately for severe CFS.
If chronic pain is a predominant feature, referral to a pain management clinic should be considered. Amitriptlyline should be considered for patients with poor sleep or pain.
Patients should be advised that relapses and setbacks are to be expected.

Question

A 24-year-old promising athlete is diagnosed with chronic fatigue syndrome.
Which of the following treatments is indicated?

Your Answer

- Graded exercise therapy - This is the correct answer ✔
- Group therapy
- Prednisolone
- Seroxat
- ✓ Thyroxine - Incorrect answer selected ✖

Rate this question

Next

Explanation

NICE have published guidance on the diagnosis and management of Chronic fatigue syndrome/myalgic encephalomyelitis (or encephalopathy) (CG53). To confirm a diagnosis of fatigue the following main features need to be present:

- It must be new in onset, persistent or recurrent and unexplained by other conditions.
- It should be characterised by post-exertional malaise.
- It should result in a substantial reduction in activity level.

Associated symptoms include:

- Hypersomnia or insomnia
- Muscle or joint pain without inflammation
- Painful lymph nodes without lymphadenopathy
- Headaches
- Cognitive dysfunction.

Red flag symptoms which suggest another diagnosis include:

- Significant weight loss
- Inflammatory arthropathy or connective tissue disease
- Localising or focal neurological signs.

The diagnosis of CFS is one of exclusion, and features must have been present for at least four months in an adult.
Clinicians should check:

- Full blood count (FBC)
- Urea and electrolytes (U&Es)
- Urinalysis
- Liver function tests (LFTs)
- Thyroid function
- Erythrocyte sedimentation rate (ESR)
- C reactive protein (CRP)

Next

- Thyroid function
- Erythrocyte sedimentation rate (ESR)
- C reactive protein (CRP)
- Blood glucose
- Creatinine
- Gluten sensitivity calcium
- Creatinine kinase, and
- Ferritin.

Initial treatment should focus on management of symptoms, and minimising their impact on daily activities. Patients must be encouraged to continue work and studies. Any therapy should be person-centred and should aim to improve the patient's capacity to manage their symptoms.

The majority of research evidence is for cognitive behavioural therapy (CBT) and/or graded exercise therapy and these should be offered to all people with mild or moderate CFS.

In addition, patients should be given tailored sleep management advice including how to introduce rest periods into their daily routine. Relaxation techniques should be offered for the management of pain, sleep problems, stress and anxiety.

There is no research evidence to support the experience of some patients with CFS that they are more intolerant of drug treatment. In addition, there is insufficient evidence to recommend the use of complementary therapies or vitamin supplementation.

The following drugs should not be used:

- Monoamine oxidase inhibitors
- Glucocorticoids
- Mineralocorticoids
- Dexamphetamine
- Thyroxine
- Antivirals.

Referral to specialist CFS care should be offered within six months of presentation to people with mild CFS, within three to four months for moderate CFS and immediately for severe CFS.

If chronic pain is a predominant feature, referral to a pain management clinic should be considered. Amitriptlyline should be considered for patients with poor sleep or pain.

Patients should be advised that relapses and setbacks are to be expected.

Next

Question

A 50-year-old woman complains of arthritis and swelling of approximately four months duration.

On examination she has a symmetrical inflammation with painful movements of the hands and feet and also swelling of both knees suggesting a diagnosis of rheumatoid arthritis.

Regarding her joint disease which of the following suggest an adverse prognosis?

(Please select 1 option)

- Acuteness of presentation
- Articular erosions on x ray
- Elevated C reactive protein
- Enthesitis
- Sero-negative for rheumatoid factor

Answer Question

Incorrect

Explanation

Articular erosions in rheumatoid arthritis occuring early on in the course of the disease especially within the first six months of presentation indicate a poor prognosis. Over time joint damage will relate to disability.

A positive rheumatoid factor is associated with:

- More severe erosive disease
- Extra-articular manifestations including subcutaneous nodules and
- Increased mortality.

An acute onset of presentation is not a poor prognostic factor.

Raised inflammatory markers (C reactive protein [CRP], erythrocyte sedimentation rate [ESR]) and the duration of the early morning stiffness both correlate with disease activity.

Question

A 50-year-old woman complains of arthritis and swelling of approximately four months duration.

On examination she has a symmetrical inflammation with painful movements of the hands and feet and also swelling of both knees suggesting a diagnosis of rheumatoid arthritis.

Regarding her joint disease which of the following suggest an adverse prognosis?

Your Answer

- Acuteness of presentation
- Articular erosions on x ray - This is the correct answer ✔
- Elevated C reactive protein

Next

Question

An 18-year-old male presents with a six week history of a painful swollen right knee. He had been treated for a sexually transmitted disease three months ago.

On examination, there was a large effusion in the right knee. Synovial fluid analysis revealed a white cell count of 16 $\times 10^9$/L (4-11) but culture was negative.

Which one of the following organisms is the most likely cause?

(Please select 1 option)

- Human papilloma virus
- Herpes simplex
- *Neisseria gonorrhoeae*
- *Treponema pallidum*
- *Trichomonas vaginalis*

Answer Question

Incorrect

Explanation

Bacteria are the most common cause of monoarthritis.

Staphylococcus aureus and gonococci are the most common causes of septic arthritis.

Neisseria gonorrhoeae typically occurs in young adults. Presentation is either as a bacteraemic form (classic triad of migratory polyarthritis, tenosynovitis, and dermatitis) which is usually polyarticular or a septic arthritis, as in this case. The septic arthritis form presents with joint symptoms which begin within days to weeks of gonococcal infection. Gram stain is positive in 25% and culture positive in 50%.

This patient has been treated previously for a sexually acquired infection and this may be why the culture is negative.

Reactive arthritis can also result following a sexually acquired infection (usually *Chlamydia trachomatis*) and can result in mono or polyarthritis.

Question

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Which one of the following organisms is the most likely cause?

Your Answer

- Human papilloma virus
- Herpes simplex
- *Neisseria gonorrhoeae*- This is the correct answer ✔

Next

Question

A 72-year-old man presents with an acutely painful right knee. On examination, he has a temperature of 37°C with a hot, swollen right knee.

Of relevance amongst his investigations, is a white cell count of 12.6 $\times 10^9$/L (4-11) and a knee radiograph which shows reduced joint space and calcification of the articular cartilage.

Culture of aspirated fluid reveals no growth.

What is the most likely diagnosis?

(Please select 1 option)

- Gout
- Pseudogout
- Psoriatic monoarthropathy
- Rheumatoid arthritis
- Septic arthritis

Answer Question

1. Zhang W, et al. European League Against Rheumatism recommendations for calcium pyrophosphate deposition. Part I: terminology and diagnosis. *Ann Rheum Dis.* 2011;70:563-70.
2. Zhang W, et al. EULAR recommendations for calcium pyrophosphate deposition. Part II: management. *Ann Rheum Dis.* 2011;70:571-5.

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Rate this question

Next

Incorrect

Explanation

This is a typical presentation of pseudogout (calcium pyrophosphate arthropathy) with evidence of osteoarthritis, calcification of the articular cartilage and no growth on synovial culture. Classically there is rapid onset inflammatory symptoms and signs. Risk factors include age, osteoarthritis and metabolic disturbance (e.g. primary hyperparathyroidism, haemochromatosis).

Management of acute episodes include cool packs, rest, joint aspiration and steroid injection. Prophylaxis is typically with oral NSAIDs and/or low-dose colchicine. Oral corticosteroids, methotrexate or hydroxycholoroquine can be used in resistant disease. Asymptomatic crystal deposition does not need treatment.

The differential does include gout but isolated monoarthritis of the knee is less common than with pseudogout. Distinguishing between the two depends on analysis of the crystals with calcium pyrophosphate crystals demonstrating no ora positive birefringence and urate crystals demonstrating a negative birefringence under polarising light.

Distinguishing between the two depends on analysis of the crystals with CPP crystals demonstrating a positive birefringence and urate crystals demonstrating a negative birefringence.

It is rare for rheumatoid arthritis to present as a large joint monoarthritis is a gentleman of this age.

Negative synovial fluid culture makes septic arthritis a less likely diagnosis.

There are five classic presenations of psoriasis (none of which fit with this scenario):

- Symmetrical polyarthritis: 'rheumatoid pattern'
- Asymmetric oligoarticular/pauciarticular arthritis: initial involvement of the hands and feet with dactylitis
- Distal interphalangeal joint predominant involvement
- Arthritis mutilans, and
- Spondylitic pattern.

The typical rash of psoriasis usually predates the onset of arthritis.

Reference:

1. Zhang W, et al. European League Against Rheumatism recommendations for calcium pyrophosphate deposition. Part I: terminology and diagnosis. *Ann Rheum Dis* 2011;70:563-70

Next

Question

A 23-year-old teacher presents with a three week history of fever, weight loss, and erythematous nodular lesions on the shin. There is no peripheral adenopathy nor abnormal enlargement of an organ (organomegaly).

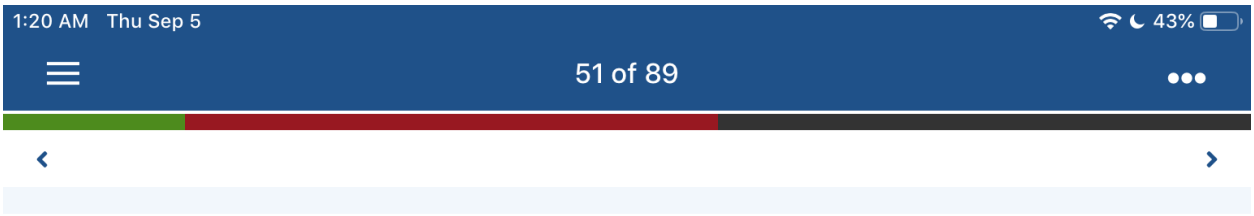
A chest x ray showed bilateral hilar adenopathy and a CT guided biopsy of the mediastinal lymph nodes was performed. This showed chronic inflammation with multiple non-caseating granulomas.

What is the most likely diagnosis?

(Please select 1 option)

- Histoplasmosis
- HIV
- Lymphoma
- Sarcoidosis
- Tuberculosis

Answer Question



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Rate this question



Next

Incorrect

Explanation

The presence of bilateral hilar adenopathy in someone with erythema nodosum-like lesions, fever and weight loss suggests the diagnosis of sarcoidosis.

Sarcoidosis is a multisystem granulomatous disorder that commonly presents with pulmonary involvement. It is diagnosed on the basis of clinical and radiological manifestations, which can be supported by histiological demonstration of non-caseating granulomas in biopsy tissue. Bilateral hilar lymphadenopathy is a classical feature demonstrated on chest radiograph.

The aetiology of sarcoidosis is still not fully understood but may include exposure to an environmental antigen in combination with a genetic predisposition.

Traditionally pulmonary involvement is classified in to five stages based on chest radiograph findings:

- Stage 0 - normal chest radiograph
- Stage 1 - bilateral hilar lymphadenopathy (BHL)
- Stage 2 - BHL with pulmonary infiltrates
- Stage 3 - parenchymal infiltrates without hilar lymphadenopathy
- Stage 4 - pulmonary fibrosis (volume loss) +/- cavitations, calcifications, bullae.

Treatment of sarcoidosis is symptomatic and the mainstay remains oral corticosteroids. These should be continued for 12 months and the dose tapered to stop within two years maximum.

There is insufficient evidence to recommend the use of immunosuppressants routinely.

Methotrexate and azathioprine can be used in refractory cases. Surgical intervention can be considered in severe cases. Cutaneous disease typically responds to oral non-steroidal anti-inflammatory treatment.

Differential diagnosis of bilateral hilar adenopathy includes:

- Sarcoidosis
- Lymphoma
- Tuberculosis
- Pneumoconiosis
- Berylliosis, and

Next

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Differential diagnosis of bilateral hilar adenopathy includes:

- Sarcoidosis
- Lymphoma
- Tuberculosis
- Pneumoconiosis
- Berylliosis, and
- Fungal diseases like histoplasmosis.

Ninety per cent of people infected with histoplasma are asymptomatic. If symptoms are present they typically commence within three to 10 days of exposure, and consist of fever, headache and malaise.

HIV has a variety of clinical manifestations often due to opportunistic infection, but it is not the most likely diagnosis in this case.

Biopsy of lymphoma would be expected to demonstrate malignant cells.

Tuberculosis is an important differential diagnosis, but histology is typically caseating granulomas.

Reference:

1. Jain V et al. PET scanning in sarcoidosis. *Ann N Y Acad Sci.* 2011;1228:46-58
2. Moller DR, Chen ES. What causes sarcoidosis? *Curr Opin Pulm Med.* 2002;8:429-434.

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Next

Question

A 24-year-old woman presents to her physician with triphasic Raynaud's phenomenon.

It affects her daily activities and can be very painful. In particular, it is exacerbated when handling refrigerated items at her work in the local supermarket.

She smokes 20 cigarettes a day. An examination is unremarkable. Initial investigations show her to be antinuclear antibody (ANA) negative.

What is the best initial line of management?

(Please select 1 option)

- Admit to hospital electively for five days of IV iloprost
- Advise on lifestyle changes to reduce the frequency of the attacks, such as heated gloves, stopping smoking and liaising with her employer's occupational therapy department to change her duties avoiding the cold environments
- Commence on nifedipine Retard
- Refer for nail fold capillaroscopy
- Sympathectomy

Answer Question

Explanation

This question recognises the importance of using conservative management before embarking on potentially long term medication with risks of side effects, and the recognition of the vasospastic effect of cigarette smoking.

The prostaglandin iloprost is useful in the treatment of Raynaud's phenomenon and can be considered if the patient does not respond to nifedipine Retard or has developed digital ulceration or ischaemia.

Raynaud's phenomenon responds well to calcium channel blockers such as nifedipine but given that this lady has so many factors that can be altered in her lifestyle, such as smoking and working in a cold environment, more simple measures to change these could avoid daily medication with its side effects.

Digital sympathectomy should be considered as a last resort when drug therapy has failed or has not been tolerated.

Capillaroscopy is useful especially when serum antibodies are positive but it would not change the management at this stage.

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 This is the correct answer ✔
- Commence on nifedipine Retard

Next

Question

Bone densitometry performed on a 48-year-old woman demonstrates bone mass decreased more than 2 standard deviations below the mean for her age in her left femoral head, wrist, and lumbar vertebral region.

Six months later the amount of bone loss is seen to be increased by repeat densitometry examination.

These findings are most likely to be associated with with which of the following serum laboratory test abnormalities?

(Please select 1 option)

- Cortisol of 2060 mmol/L (110 - 607)
- Intact parathormone of 5 pmol/L (1.2 - 5.8)
- Total cholesterol of 10 mmol/L (< 5.17)
- Total serum globulin of 35 g/L
- Uric acid of 930 µmol/L (149 - 446)

Answer Question

Incorrect

Explanation

She has osteoporosis with decreased bone mass. Most cases do not have a specific aetiology, but Cushing's syndrome with hypercortisolism can promote osteoporosis. Her age should make you suspicious.

Hypoparathyroidism is not going to accelerate bone loss. The bone resorption that accompanies hyperparathyroidism can cause osteoporosis.

Over 95% of cases of osteoporosis are 'primary' with unknown cause. Elevated serum globulin should make you suspect a monoclonal gammopathy, but myeloma leads to focal bone lytic lesions.

Hyperuricaemia can be associated with gout that can cause focal bone destruction near affected joints, the bone mass overall is not decreased.

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- Total cholesterol of 10 mmol/L (< 5.17)

Next

Question

A 52-year-old woman with type 2 diabetes presents with a two month history of painful hands and feet.

Investigations confirm a diagnosis of sero-positive erosive rheumatoid arthritis. She has some pain relief from non-steroidal anti-inflammatory agents. She currently takes metformin 500 mg tds and has good glycaemic control as reflected by a HbA_{1c} of 50 mmol/mol (20-46).

Which of the following DMARDS would be most appropriate initial treatment of her early rheumatoid arthritis?

(Please select 1 option)

- Ciclosporin
- Etanercept
- Hydroxychloroquine
- IM gold
- Methotrexate

Answer Question

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- Hydroxychloroquine
- IM gold
- ✓ Methotrexate - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

Guidance recommends the use of disease modifying anti-rheumatic drugs (DMARDs) early in the treatment of rheumatoid arthritis, maintaining function and reducing progression of the disease (SIGN 2001). First line agents include methotrexate and sulfasalazine (SIGN 2000) and most subjects receive methotrexate.

Generally gold is considered more toxic than the former two and hydroxychloroquine is probably less effective.

Ciclosporin is again rather more toxic than either methotrexate or sulfasalazine, with nephrotoxicity and immunosuppression and is generally reserved for RhA with systemic features such as vasculitis.

The tumour necrosis factor (TNF) alpha antagonists, etanercept and infliximab, are generally reserved for individuals unresponsive to traditional DMARDS.

Reference:

British Society for Rheumatology. BSR Guidelines.

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Question

A 26-year-old video game tester is struggling to hold a controller in his left hand due to swelling over his thumb and a burning sensation along the radial side of his wrist made worse on abducting the thumb. Finklestein's test is positive.
Which of the following is the diagnosis?

(Please select 1 option)

- Carpal tunnel syndrome
- De Quervain's tenosynovitis
- Osteoarthirits
- Radial tunnel syndrome
- Rheumatoid arthritis

Answer Question

Incorrect

Explanation

Swelling and burning sensation over the thumb in a young individual with positive Finklestein's test is characteristic of De Quervain's tenosynovitis. Finklestein's test is performed by grasping the thump and ulnar deviating the hand sharply. It is positive if sharp pain occurs along the distal radius.

De Quervain's is caused by overuse of the thumb, as is the case here with this patient's job. Thickening of the synovial sheaths surrounding extensor pollicis brevis and abductor polices longus leads to pain and reduced movement.

Osteoarthritis is a possibility but would be associated more commonly in older individuals, and tenderness is classically at the base of the thumb.

Carpal tunnel presents with pain and paraesthesia of the thumb, index, middle and half of the ring fingers on the affected side.

Radial tunnel syndrome presents with pain in the dorsal aspect of the upper forearm, and is caused by pressure on the radial nerve possibly from compression by the muscles of the forearm.

Rheumatoid arthritis presents with joint swelling and pain, with subsequent hand deformity if left untreated. It is classically symmetrical.

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Question

A 62-year-old lady is suffering from pain and stiffness of her shoulders and difficulty getting out of a chair.
Which of the following would support a diagnosis of polymyalgia rheumatica?

(Please select 1 option)

- Ankle stiffness
- Low grade fever
- Muscle tenderness
- Proximal muscle weakness
- Weight gain

Answer Question

1. Ghosh P, Borg FA, Dasgupta B. Current understanding and management of giant cell arteritis and polymyalgia rheumatica. *Expert Rev Clin Immunol.* 2010;6:913-28.
2. Michet CJ, Matteson EL. Polymyalgia rheumatica. *BMJ.* 2008;336:765-769.

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Rate this question



Next

Explanation

Polymyalgia rheumatica is an inflammatory disease which typically presents with pain and stiffness of the the shoulder and pelvic girdle muscles. It can have either an acute or subacute onset and is associated with a systemic inflammatory response and therefore constitutional symptoms such as fever, anorexia, weight loss and malaise.

The course of the disease is unpredictable, and 30% of patients also have giant cell arteritis. The cause is unknown, although studies showing a cyclical incidence have led to theories regarding an infectious trigger.

Diagnosis of PMR can prove difficult, and other inflammatory conditions should be excluded. Patients are usually over 60 years, and PMR is very rarely seen in the under 50s. Muscle weakness is not a feature of PMR, but this can be difficult to assess in the presence of pain.

Due to chronic inflammation, low grade fever and weight loss are often present. Weight gain is unusual, and peripheral joints are only rarely affected. Muscle tenderness is not a specific feature of polymyalgia rheumatica, and is not a classical finding. Patient's describe pain and stiffness, but the muscles are often not significantly tender. This is more suggestive of myositis or fibromyalgia.

Investigations typically reveal:

- Normochromic / normocytic anaemia
- Raised erythrocyte sedimentation rate (ESR) often > 50 mm/hr (although this may be normal)
- Raised C reactive protein (CRP).

Features of giant cell arteritis should be sought:

- Headache
- Visual disturbance
- Transient ischaemic attacks (TIAs)
- Jaw claudication and
- Thickened and tender, temporal arteries.

Response to a moderate dose of steroids can be useful in confirming the diagnosis of PMR. The maximum dose of prednisolone should not exceed 20 mg once daily. Patients should report 70% improvement in symptoms within three to four weeks, and inflammatory markers should have normalised by this point.

In general, non-steroidal anti-inflammatories have little use and are associated with significant morbidity. There is little evidence for the use of steroid-sparing agents.

References:

Next

Question

A 68-year-old woman presents with pain at the base of her right thumb. There is tenderness and swelling of the right first carpometacarpal joint.
What is the most likely diagnosis?

(Please select 1 option)

- Avascular necrosis of the scaphoid
- De Quervain's tenosynovitis
- Osteoarthritis
- Psoriatic arthritis
- Rheumatoid

Answer Question

Explanation

The first carpometacarpal joint is a frequent site of osteoarthritis in postmenopausal women. Clinical features include tenderness, stiffness, crepitus, swelling and pain on abduction of the thumb. Squaring of the hand, caused by swelling, radial subluxation of the metacarpal and atrophy of the thenar muscles, is a characteristic clinical sign.

Scaphoid fractures are relatively common, typically occurring following a fall onto outstretched hand. The proximal portion lacks its own blood supply, so avascular necrosis can occur if a fracture leaves it isolated from the remainder of the scaphoid. This produces pain and tenderness of the radial side of the wrist, classically in the anatomical snuffbox rather than the base of the thumb, exacerbated by wrist movement.

De Quervain's tenosynovitis disease is a common pathology which consists of a stenosing tenosynovitis of the first dorsal compartment of the wrist. It typically presents with pain on the radial aspect of the wrist, with associated swelling and tenderness. Treatment is with splinting, with or without corticosteroid injection.

Reference:

1. Ilyas AM, at al. De quervain tenosynovitis of the wrist. *J Am Acad Orthop Surg.* 2007;15:757-64.
2. Peter JB, Marmor L. Osteoarthritis of the first carpometacarpal joint. *Calif Med.* 1968;109:116-20.

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Question

A 29-year-old woman with a history of SLE gives birth to her first child. She has suffered two previous miscarriages and has been managed with low molecular weight heparin injections during her pregnancy.

The labour is uneventful, but the midwives notice that the child has an erythematous rash. He is also bradycardic with a pulse of 75.

Which of the following antibodies is most likely to be linked to the illness in the baby?

(Please select 1 option)

- Anti-LKM
- Anti-Ro/SSA
- Anti-smooth muscle
- c-ANCA
- Rheumatoid factor

Answer Question

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- Anti-smooth muscle
- c-ANCA
- ✓ Rheumatoid factor - Incorrect answer selected ✖

Rate this question



Next

Explanation

Neonatal lupus is an uncommon condition associated with the transplacental passage of maternal anti-Ro and/or anti-La autoantibodies.

Findings may include:

- Cutaneous lupus lesions
- Third-degree heart block
- Cardiomyopathy
- Hepatobiliary disease, and
- Cytopenias.

Typically only one organ is affected in each infant.

The most severe manifestation is the heart block, which usually begins during the second trimester of pregnancy. It is rare, occurring in only 2% of mothers with anti-Ro or anti-La antibodies. Once established this is permanent, unlike the other manifestations which are generally transient.

The rash is most frequently seen around the eyes, but also occurs in other parts of the body.

Asymptomatic elevation of liver function tests is seen in 10-25% of cases.

Overall, non-cardiac involvement is more common than cardiac.

A significant number of babies with neonatal lupus are born to mothers who are not known to have systemic lupus erythematosus.

Anti-LKM and anti-smooth muscle antibodies are associated with autoimmune hepatitis.

c-ANCA is highly specific for Wegener's granulomatosis.

Rheumatoid factor is non-specific, but is seen at increased frequency in patients with rheumatoid arthritis.

Reference:

1. Brucato A, et al. Arrhythmias presenting in neonatal lupus. *Scand J Immunol.* 2010;72:198-204.
2. Lee LA. The clinical spectrum of neonatal lupus. *Arch Dermatol Res.* 2009;301:107-10.
3. Lee LA. Cutaneous lupus in infancy and childhood. *Lupus.* 2010;19:1112-7.
4. Silverman E, Jaeggi E. Non-cardiac manifestations of neonatal lupus erythematosus. *Scand J Immunol.* 2010;72:223-5.

Next

Question

A 58-year-old man has a one year history of anterior knee pain increased by climbing stairs, and walking. There is no rest or night pain. There is no history of joint swelling, alcohol use or chronic skin conditions.

On examination, there is crepitus on active and passive knee movements and knee flexion is painful beyond 110°. Hip and back movements are normal.

What is the most likely diagnosis?

(Please select 1 option)

- Gout
- Osteoarthritis
- Osteonecrosis
- Psoriatic arthritis
- Rheumatoid arthritis

Answer Question

Incorrect

Explanation

Osteoarthritis is likely as the joint pain is increased by activity.

Knee crepitus occurs with patella-femoral osteoarthritis.

Gout is unlikely, as there is no history of episodes of acute crystal synovitis. Also there are no risk factors for gout, for example, excess alcohol intake, renal impairment, or diuretic use.

There is no symptom suggestive of inflammatory arthritis, for example, early morning stiffness, or synovitis.

The lack of a personal or family history of psoriasis makes psoriatic arthritis very unlikely.

Osteonecrosis is usually an acutely painful condition, presenting as acute exacerbation of knee pain in those with knee OA.

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Next

Question

A 78-year-old man presents with an acute onset of severe pain and swelling of the left wrist which had developed since he had a chest infection two weeks previously.
On examination he had a temperature of 38 °C and the left wrist was red, swollen and painful.
What is the most appropriate investigation for this patient?

(Please select 1 option)

- Erythrocyte sedimentation rate
- Full blood count
- Joint aspiration
- Serum urate concentration
- x Ray of the joint

Answer Question

Explanation

This gentleman has presented with an acute onset monoarthritis.

A destructive septic arthritis is a potential diagnosis, and must be excluded as a matter of urgency. An aspirate is the most crucial step to exclude this and allow the timely commencement of appropriate antibiotics. Differential diagnoses include gout and pseudogout, which can also be diagnosed on joint aspiration.

ESR will be raised in many causes of joint inflammation or infection, and is therefore not helpful in establishing a diagnosis in the acute situation. It can be used to guide treatment in inflammatory arthropathies after a diagnosis is made.
Full blood count is also non-specific and often does not assist in making a diagnosis.

Hyperuricaemia is a pre-requisite for gout, but normal serum urate levels at presentation does not exclude an acute gouty attack. It is therefore not the most appropriate investigation in this case.

In the acute stages of septic arthritis there may be no signs of damage to the joint seen on a radiograph. It may show typical changes of calcium pyrophosphate dehydrate deposition or gout, which may help in his long term management, but would not change management in the acute situation.

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Next

Question

An 85-year-old woman presented with bilateral osteoarthritis of the knees. She had no history of previous gastrointestinal disease.
Which of the following is the most appropriate initial treatment for her?

(Please select 1 option)

- Celecoxib
- Dihydrocodeine
- Naproxen
- Paracetamol
- Glucosamine

Answer Question

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet*. 2011;377:2115-26.
2. NICE. Osteoarthritis (CG177).

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Which of the following is the most appropriate initial treatment for her?

Your Answer

- Celecoxib
- Dihydrocodeine
- Naproxen
- Paracetamol - This is the correct answer ✔
- ✓ Glucosamine - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

NICE guidelines recommend formulating individualised management plans for patients with osteoarthritis. Behavioural change, such as exercise, weight loss and suitable footwear should be encouraged. Comorbidities which compound the effect of osteoarthritis symptoms should be identified and their treatment optimised.

Paracetamol and/or topical NSAIDs (for knee or hand OA) should be offered before considering oral NSAIDs.

If symptoms are not controlled with the above strategies, oral NSAIDs or COX-2 inhibitors (but not etoricoxib) can be used. A proton pump inhibitor should be co-prescribed. The lowest effective dose should be prescribed for the shortest period possible. If the patient is already taking low-dose aspirin, an alternative analgesic should be considered.

Treatments which are not recommended include rubefacients, intra-articular hyaluronan, electro-acupuncture and chondroitin or glucosamine products.

Adjuvants which can be used include opioid analgesics, topical capsaicin and intra-articular corticosteroids. Application of heat or cold packs, or TENS, can be considered if other strategies are ineffective. Manipulation and stretching can be helpful, particularly for hip osteoarthritis. Bracing/joint supports can be used for patients with biomechanical joint pain or instability.

Patients should be referred for joint surgery if they have already been offered all of the core treatments or if they have refractory joint symptoms which have a substantial impact on their quality of life. If there is a clear history of mechanical locking, referral for arthroscopic lavage and debridement should be considered.

Reference:

1. Bijlsma JW, et al. Osteoarthritis: an update with relevance for clinical practice. *Lancet.* 2011;377:2115-26.
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Question

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Next

Question

A 72-year-old female is diagnosed with giant cell arteritis and is treated with prednisolone 60 mg per day.
What is the most appropriate treatment for the prevention of steroid induced osteoporosis?

(Please select 1 option)

- Alendronic acid
- Calcium
- Raloxifene
- Tibolone
- Vitamin D

Answer Question

Tibolone is a form of hormone-replacement therapy which can be used in post-menopausal women. However, it should not be considered first-line therapy, and is only used where other therapies are contra-indicated, not tolerated, or there is a lack of response.

Question

A 72-year-old female is diagnosed with giant cell arteritis and is treated with prednisolone 60 mg per day.

What is the most appropriate treatment for the prevention of steroid induced osteoporosis?

Your Answer

- Alendronic acid - This is the correct answer ✔
- Calcium
- Raloxifene
- Tibolone
- ✓ Vitamin D - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Oral glucocorticoids are associated with significant increase in fracture risk, from doses as low as 5mg daily. Loss of bone-mineral density is greatest in the first few months of glucocorticoid therapy, but fracture risk declines rapidly after stopping. There is an increased risk of fracture over and above the effect of low bone mineral density.

Patients older than 65 years are considered at high risk of osteoporotic fractureas are those with a prior fragility fracture, and they should commence on bone-protective therapy at the time of starting glucocorticoid therapy. Measurement of bone density is not required before starting therapy. In patients younger than 65 years without risk factors, DEXA scan is recommended for assessment of fracture risk.

General measures to reduce bone loss include use of the lowest dose of glucocorticoids possible, and steroid-sparing agents. Dietary calcium should be increased and physical activity, with smoking and alcohol minimised. Daily intake 1,500 mg of calcium and 800U of vitamin D3 is recommended. Bone-protective therapy which can be used includes:

- alendronate
- alfacalcidol
- calcitonin
- calcitriol
- cyclic etidronate, and
- risedronate.

Bisphosphonates are generally considered first line. If unsuitable, then calcitriol or strontium ranelate may be considered.

Raloxifene is an selective oestrogen receptor modulator (SERM) that has oestrogenic actions and anti-oestrogenic actions on the uterus and breast. It can be used in the prevention of postmenopausal osteoporosis where bisphosphonates are not suitable, but not commonly in steroid-induced osteoporosis.

Tibolone is a form of hormone-replacement therapy which can be used in post-menopausal women. However, it should not be considered first-line therapy, and is only used where other therapies are contra-indicated, not tolerated, or there is a lack of response.

Next

Question

A 55-year-old woman with longstanding well controlled sero-positive rheumatoid arthritis, treated with methotrexate (20 mg/week) and folic acid 5 mg/day, presents with neck pain, gradually worsening difficulty in walking and getting up from sitting position.

On examination, the power is 4/5 in lower limbs. The knee and ankle jerks are brisk bilaterally, and the plantars are extensor.

What is the most likely cause of her symptoms?

(Please select 1 option)

- Atlantoaxial subluxation
- Cauda equina syndrome
- Cervical spine disc prolapsed
- Pseudobulbar palsy
- Spinal stenosis

Answer Question

Question

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Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

Rheumatoid arthritis is the most common inflammatory disease involving the spine. It has a predilection for the craniocervical spine.

The three different patterns of instability which can result are:

- Atlantoaxial subluxation
- Atlantoaxial impaction, and
- Subaxial subluxation.

Atlantoaxial subluxation (distance between the arch of atlas and odontoid peg >2.5 mm) may occur due to erosion of the odontoid process or due to laxity of the transverse ligament from rheumatoid pannus resulting in posterior subluxation of the odontoid. This can lead to cervical cord compression.

In some patients, exuberant rheumatoid pannus around the odontoid peg may cause cervical spine compression without atlantoaxial subluxation.

Basilar invagination, with upward migration of the odontoid peg into the foramen magnum may lead to cord compression, or to medullary compression (which may be fatal).

Although radiographic changes are seen in up to 86% of patients, the prevalence of neurological deficit is relatively low. Radiographs should be taken laterally with the neck held in flexion.

Only a minority of patients require surgical management.

Non-surgical treatment options include patient education, lifestyle modification and regular radiographic follow up.

MRI is indicated when myelopathy occurs or when plain radiographs show atlantoaxial subluxation with a posterior atlantodental interval less than 14 mm, any degree of atlantoaxial impaction or subaxial stenosis with a canal diameter less than 14 mm.

Pseudobulbar palsy results from the degeneration of corticobulbar pathways to the lower cranial nerve nuclei. It presents with dysarthria, difficulty swallowing and weakness of the muscles of mastication. It is not commonly associated with rheumatoid arthritis.

Spinal stenosis, cauda equine syndrome and a prolapsed cervical disc could all present as described here but in the setting of rheumatoid arthritis atlantoaxial subluxation is more likely.

Reference:

Next

Question

Which of the following best describes the mode of action of alendronate?

(Please select 1 option)

- Inhibits osteoclast activity
- Promotes bone matrix calcification
- Promotes collagen synthesis
- Promotes renal absorption of calcium
- Stimulates osteoblast activity

Answer Question

Incorrect

Explanation

Simple bisphosphonates, such as clodronate and etidronate, inhibit bone resorption through induction of osteoclast apoptosis.

Clodronate, and perhaps etidronate, triggers apoptosis by generating a toxic analogue of adenosine triphosphate, which then targets the mitochondria.

For nitrogen-containing bisphosphonates, the direct intracellular target is the enzyme farnesyl-diphosphate synthase in the cholesterol biosynthetic pathway.

Its inhibition suppresses a process called protein geranylgeranylation, which is essential for the basic cellular processes required for osteoclastic bone resorption.

Although nitrogen-containing bisphosphonates can induce osteoclast apoptosis, this is not necessary for their inhibition of bone resorption.

Question

Which of the following best describes the mode of action of alendronate?

Your Answer

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Next

Question

A 68-year-old woman presents to the Emergency Department with a two-day history of pain and swelling of the right ankle. She could not recall any history of recent trauma.

On examination she was febrile, temperature 38.1°C. The right ankle was swollen and very tender with a reduced range of movement.

Which of the following investigations would be of most help in establishing the diagnosis?

(Please select 1 option)

- Aspiration of the right ankle
- Blood cultures
- Erythrocyte sedimentation rate
- Serum urate level
- x Ray of the right ankle

Answer Question

Incorrect

Explanation

Septic arthritis is a medical emergency and this is the most likely diagnosis in this case. It is essential that the joint is aspirated in order to establish a microbiological diagnosis that will guide appropriate treatment.

All of the other investigations listed would be of value in managing this patient, but in this setting joint aspiration is critical.

Question

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Next

Question

A 62-year-old female presents with deteriorating arthralgia associated with longstanding rheumatoid arthritis. She was prescribed celecoxib in place of naproxen.
Which of the following concerning celecoxib is correct?

(Please select 1 option)

- Anti-inflammatory effects of celecoxib are superior to those of naproxen
- Celecoxib acts by inhibiting a different enzyme than naproxen
- Celecoxib has a lower level of anti-platelet activity than naproxen
- Celecoxib is associated with reduced hepatotoxicity compared with naproxen
- Co-treatment with diuretic can be given more safely than with naproxen

Answer Question

in rheumatoid arthritis patients as assessed by endoscopic evaluation. *Mod Rheumatol.* 2012;22:353-62.

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Rate this question



Next

Incorrect

Explanation

Celecoxib is a selective cyclo-oxygenase(COX)-2 inhibitor differing from the other non-steroidal anti-inflammatory drugs (NSAIDs) such as naproxen which affects both COX-1 and COX-2.

COX-1 is involved in platelet aggregation and inhibition of this by the NSAIDs produces its beneficial cardiovascular effects. However platelet aggregation is not affected by COX-2.

Naproxen and celecoxib have been shown to be as effective at reducing inflammation. One of the benefits of celecoxib is its reduced incidence of upper gastrointestinal side effects.

As with the non-specific NSAIDS, hepatotoxicity may occur with the COX-2 specific inhibitors resulting in cholestatic, hepatocellular or mixed liver injury. Rates seem to be comparable between the traditional NSAIDs and the COX-2 selective inhibitors.

Co-administration of diuretics and COX-2 inhibitors should be avoided if possible, as COX-2 inhibitors may reduce the antihypertensive and diuretic effects of diuretics. This may be due to impaired prostaglandin synthesis, which results in salt and water retention. In addition, COX-2 inhibitors have nephrotoxic effects which can be exacerbated by diuretics.

Rofecoxib (Vioxx) has been withdrawn due to its increased cardiovascular events compared with naproxen. The cardiovascular effects of the COX-2 inhibitors remains under study, and care should be taken before prescribing them to patients with a past medical history of significant cardiovascular disease.

References:

Tsuji S, et al. Celecoxib, a cyclooxygenase-2 inhibitor, improved upper gastrointestinal lesions in rheumatoid arthritis patients as assessed by endoscopic evaluation. *Mod Rheumatol.* 2012;22:353-62.

Question

A 62-year-old female presents with deteriorating arthralgia associated with longstanding rheumatoid arthritis. She was prescribed celecoxib in place of naproxen.

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Your Answer

Next

Question

A female presents with headache, lethargy and weight loss.
Which of the following would make the diagnosis of giant cell arteritis (GCA) unlikely?

(Please select 1 option)

- A normal ESR
- Bilateral headache
- Non-tender temporal arteries
- Papilloedema without visual loss
- The patient is 50-years-old

Answer Question

Incorrect

Explanation

Patients are usually elderly with a typical age of 70 but not exclusively so.
The temporal arteries are usually tender but they may be non-tender.
Similarly there is usually a unilateral headache but often presents as bilateral headache.
Erythrocyte sedimentation rate (ESR) is typically elevated but a normal ESR is well recognised.
However, papilloedema without visual loss would suggest raised intracranial pressure.
One would expect visual loss with anterior ischaemic optic neuropathy in GCA.

Question

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Your Answer

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- Non-tender temporal arteries
- Papilloedema without visual loss - This is the correct answer ✔
- ✓ The patient is 50-years-old - Incorrect answer selected ✖

Next

Question

A 76-year-old lady with stable congestive cardiac failure presents to the Emergency department at 11 pm with a two day history of a painful hot swollen right knee. She is unable to weight bear. She lives alone. Her temperature is 37.4°C.

Which of the following is the most crucial step in her management?

(Please select 1 option)

- Aspirate the right knee for urgent Gram stain, microscopy,culture and sensitivity
- Provide non-steroidal anti-inflammatory for pain relief
- Prescribe paracetamol and discharge home with GP follow up
- Take a full history from the patient, in particular, enquire into any previous episodes of joint pain
- x Ray the right knee

Answer Question

Explanation

This lady has presented with an acute onset monoarthritis. A destructive septic arthritis is a potential diagnosis and must be excluded as a matter of urgency. An aspirate is the most crucial step to exclude this and allow the timely commencement of appropriate antibiotics. Differential diagnoses include gout and pseudogout, which can also be diagnosed on joint aspiration.

Although non-steroidal anti-inflammatories would be useful as pain relief they may exacerbate the congestive cardiac failure and should be used with caution. Also the renal function must be checked to ensure a non-steroidal anti-inflammatory can be used.

Discharging home with paracetamol is not an acceptable management plan as the lady lives alone and cannot weight bear. She is unlikely to cope and will be at risk of falls.

A full history is imperative in formulating a differential diagnosis. For example, previous similar episodes in her great toes and the use of diuretics may suggest a diagnosis of acute gout. However, this does not exclude a destructive septic arthritis. An aspirate is the most crucial step to exclude this and allow the timely commencement of appropriate antibiotics.

In the acute stages of septic arthritis there may be no signs of damage to the joint seen on a radiograph. It may show typical changes of calcium pyrophosphate dihydrate deposition disease or gout, which may help in her long term management, but this would not change the management in this acute situation.

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Next

Question

A 30-year-old male presents with a week history of a painful right leg.
Past medical history reveals that he had erythema nodosum and recurrent oral and scrotal ulceration.
Examination reveals a diffusely swollen left leg, and acute tenderness with erythema of the right lower leg..
What is the most likely cause of his swollen left leg?

(Please select 1 option)

- Cellulitis
- Lymphoedema
- Pyomyositis
- Ruptured popliteal (Baker's) cyst
- Venous thrombosis

Answer Question

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- Pyomyositis
- Ruptured popliteal (Baker's) cyst
- ✓ Venous thrombosis - Correct ✔

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Correct

Explanation

This man has clinical features of Behçet's syndrome.

Behçet's syndrome is a systemic vasculitis with an unknown aetiology, which affects small and large vessels (venous and arterial).

More than 60% of patients are HLA-B51, and there is an increased prevalence in the Mediterranean countries.

It is commonly associated with mucocutaneous manifestations (oro-genital ulceration, erythema nodosum), ocular disease, gastrointestinal involvement and neurological features. Venous thrombosis is a common complication, and therefore there should be a high clinical suspicion of a left sided DVT in this case. The tenderness and erythema of the right leg is most likely due to erythema nodosum.

None of the other conditions listed above are commonly associated with Behçet's syndrome.

Reference:

Kaneko F, et al. Behçet's disease (Adamantiades-Behçet's disease). *Clin Dev Immunol.* 2011;2011:681956.

Question

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Your Answer

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Next

Question

What is the mechanism of action of tocilizumab?

(Please select 1 option)

- Anti-CD 20 antibody
- Anti-IL 1 antibody
- Anti-IL 6 antibody
- Anti-TNF alpha antibody
- CTLA4 homologue

Answer Question

Tocilizumab is a humanised anti-IL 6 receptor monoclonal antibody. It is licensed for the treatment of moderate to severe rheumatoid arthritis (RA) which has responded inadequately to DMARDs or TNF antagonists. Used as monotherapy, or in combination with methotrexate, it has been shown to reduce disease activity in RA.

Abatacept, used for RA is a cytotoxic T lymphocyte antigen 4 (CTLA 4) homologue.

Adalimumab, etanercept, infliximab, golimumab, and certolizumab are anti-TNF alpha agents.

Anti-TNF alpha agents are used in treatment of various inflammatory conditions, for example,

- Rheumatoid arthritis (RA)
- Juvenile idiopathic arthritis
- Psoriatic arthritis
- Ankylosing spondylitis and
- Crohn's disease.

Rituximab is an anti-CD 20 antibody used in the treatment of RA and haematological malignancies.

Anakinra is anti-IL 1 antibody, used in the treatment of RA (occasionally), adult onset Still's disease, and familial Mediterranean fever.

Reference:

Tak PP, Kalden JR. Advances in rheumatology: new targeted therapeutics. *Arthritis Res Ther.* 2011;13:S5.

Question

What is the mechanism of action of tocilizumab?

Your Answer

- Anti-CD 20 antibody
- Anti-IL 1 antibody
- Anti-IL 6 antibody - This is the correct answer ✔

Next

Question

A 62-year-old lady is followed up with a one-year history of ultrasound positive, bilateral carpal tunnel syndrome. It is refractory to previous physiotherapy and two subcutaneous injections.

Her past medical history includes multiple myeloma. Her BMI is 33 kg/m^2.

You refer her for a carpal tunnel release and request that a biopsy sample is taken to refute amyloidosis.

Which of the following is a pathological feature of amyloidosis?

(Please select 1 option)

- Congo red histological staining - negative birefringence
- Crystallisation in water and buffers of low ionic strength
- Electron micrography - fibrillar appearance
- Haematoxylin and eosin staining - amorphous granulomatous appearance
- x Ray diffraction pattern - alpha helical structure

Answer Question

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Rate this question

Next

Incorrect

Explanation

This question covers the following learning points:

- Define and recognise histological and radiological properties of amyloid
- Understand the basic nomenclature of amyloidosis
- Common clinical association of AL amyloid.

Amyloidosis, as a clinic-pathological descriptor, is used to denote the in vivo, extracellular deposition of material (amyloid) characterised by the following properties:

1. Electron micrography - fibrillar appearance
2. x Ray diffraction pattern - beta pleated sheet structure
3. Haematoxylin and eosin staining - amorphous eosinophilic appearance
4. Congo red histological staining - apple-green birefringence
5. Solubility in water and buffers of low ionic strength.

All types of amyloid consist of an insoluble major fibrillar protein (more than 27 unrelated proteins in humans) that defines the type of amyloid.

This patient has probably developed AL (light chain; formerly primary amyloidosis) amyloid in association with her underlying multiple myeloma, where the precursor protein is a clonal immunoglobulin light chain or light chain fragment.

Question

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Next

Question

A 31-year-old female presents with red scaly plaques on her cheeks, forehead, and sides of the neck.

On close inspection of the lesions, there was plugging of some hair follicles with keratin and atrophy of the skin.

Which is the most likely diagnosis?

(Please select 1 option)

- Atopic eczema
- Discoid lupus erythematosus
- Polymorphic light eruption
- Porphyria cutanea tarda
- Psoriasis

Answer Question

Jessop S, et al. Drugs for discoid lupus erythematosus. *Cochrane Database Syst Rev.* 2009; (4):CD002954.

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- ✓ Psoriasis - Incorrect answer selected ✖

Rate this question



Next

Incorrect

Explanation

This woman has discoid lupus erythematosus.

Lesions are discrete plaques, often erythematous, covered by scales that extend into dilated hair follicles. These lesions most typically occur on the face, scalp, in the pinnae, behind the ears, and on the neck. They can exist in areas not exposed to the sun.

The lesions can progress, with active indurated erythema, at the periphery. Central atrophic scarring is characteristic.

Without treatment, lesions can cause permanent scarring and alopecia. Patients with widespread disease are at increased risk of developing systemic lupus erythematosus and should be closely followed up. Fluocinonide cream, hydrocortisone, and acitretin are topical treatment options.

In eczema, dryness and lichenification are predominant features.

Psoriasis commonly appears as inflamed lesions covered with a silvery white scale.

Polymorphic light eruption is characterised by recurrent, abnormal, delayed reactions to sunlight, ranging from erythematous papules, papulovesicles, and plaques to erythema multiforme-like lesions on sunlight-exposed surfaces.

Porphyria cutanea tarda is either primary or secondary uroporphyrinogen decarboxylase deficiency. The commonest symptoms are cutaneous fragility and blistering of sun-exposed skin. There may also be urine discolouration.

Reference:

Jessop S, at al. Drugs for discoid lupus erythematosus. *Cochrane Database Syst Rev.* 2009; (4):CD002954.

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Next

Question

A 35-year-old lady presents for follow up for a right-sided Colles' fracture. This was sustained following a slip in the kitchen at home. You are suspicious given the apparent low velocity mechanism of injury.

Which of the following measurements would correspond to a diagnosis of osteoporosis?

(Please select 1 option)

- T-score −1.5
- T-score −2.5
- Z-score −1.5
- Z-score −2.0
- None of the above

Answer Question

Reference:

Lewiecki EM. Premenopausal bone health assessment. *Curr Rheumatol Rep.* 2005;7(1):46-52.

Question

A 35-year-old lady presents for follow up for a right-sided Colles' fracture. This was sustained following a slip in the kitchen at home. You are suspicious given the apparent low velocity mechanism of injury.

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- Z-score −1.5
- Z-score −2.0
- ✓ None of the above - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

It is important to be aware of the following:

- Bone mineral density (BMD) measurement in premenopausal women
- Risk factors for low BMD in premenopausal women
- Definition of fragility fracture.

The scoring systems are differentiated by their reference populations:

- T-scores compare the patient's bone mineral density (BMD) with that of a healthy young adult
- Z-scores compare the individual's BMD with that of a population of peers.

Osteoporosis is diagnosed according to the World Heath Organisation and International Osteoporosis Foundation criteria which state:

- Osteoporosis: hip BMD 2.5 SD or more below the young adult reference mean (T score ≤−2.5).
- Severe osteoporosis: hip BMD 2.5 SD or more below the young adult reference mean in the presence of one or more fragility fractures (T-score ≤−2.5 PLUS fracture).
- Osteopenia: hip BMD between 1 and 2.5 DS below the young adult reference mean (T score less than −1 but above −2.5).
- Normal: hip BMD greater than the lower limit of normal which is taken as 1 SD below the young adult reference mean (T score ≥−1).

This fracture is suspicious of a fragility state because it has resulted from a mechanical force equivalent to a fall from standing height, which should not ordinarily cause a fracture. This result should prompt a search for osteoporotic risk factors.

The Z-score is not routinely used in the diagnosis of osteoporosis. It compares bone mineral density to age-matched normal subjects, and also involves matching to age, sex and ethnicity. It can be used to investigate the possibility of osteoporosis in premenopausal women, men under the age of 50 and children. It is most useful when the bone mineral density is less than 2 standard deviations below the normal.

Reference:

Lewiecki EM. Premenopausal bone health assessment. *Curr Rheumatol Rep.* 2005;7(1):46-52.

Next

Question

A 66-year-old man presented to the ophthalmologist with a two day history of sudden loss of vision in his left eye, with which he had awoken.

He also had left jaw claudication and tingling and numbness in his hands with difficulty in performing fine movements for the last 10 days. In addition he has had stiffness in his shoulders and neck with difficulty getting up from a chair for a few weeks. He has lost a stone in six weeks and has had night sweats. He has not travelled recently.

He is a non-smoker and does not drink alcohol. His past medical history includes late onset asthma, recurrent sinusitis and allergic rhinitis.

Examination revealed no perception of light in left eye, weak hand grip and power 4/5 in proximal muscles of the lower limbs with normal reflexes and down going plantars. He was pyrexial with a temperature of 38.9°C. Fundoscopy revealed a possible left retinal artery infarct. His temporal arteries were palpable and non-tender.

Full blood count revealed:

WCC	37 $\times 10^9$/L	(4-11)
Eosinophils	14 $\times 10^9$/L	(0.04-0.4)
Neutrophils	14 $\times 10^9$/L	(1.5-7)
Platelets	574 $\times 10^9$/L	(150-400)
Hb	129 g/L	(130-180)
Plasma viscosity	1.82 mPa/s	(1.50-1.72)
CRP	211 mg/L	(<10)
CK	802 U/L	(24-195)

CXR revealed a thickened right middle lobe fissure. CT head demonstrated fluid within the left maxillary sinus, and normal intracranial appearances. His immunology revealed a high titre of P-ANCA with MPO 82, and PR3 2. ANA was negative and immunoglobulins were normal. Total IgE was 233 (normal range 4.2-595 U/ml).

Muscle biopsy showed no evidence of myositis.

What is the most probable diagnosis?

(Please select 1 option)

Answer Question

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- Allergic bronchopulmonary aspergillosis
- Churg-Strauss syndrome
- Giant cell arteritis
- Hypereosinophilic syndrome
- Wegener's granulomatosis

Answer Question

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Your Answer

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- Churg-Strauss syndrome - This is the correct answer ✔
- Giant cell arteritis
- Hypereosinophilic syndrome
- ✓ Wegener's granulomatosis - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

Churg-Strauss syndrome (CSS) is a rare form of small-vessel vasculitis, characterised by asthma, allergic rhinitis and prominent peripheral blood eosinophilia. Rarely, it can cause either an anterior or a posterior ischaemic optic neuropathy, which presents with visual loss as is the case here. Whilst the history seems typical of giant cell arteritis the raised eosinophilia count and positive MPO antibodies should lead you to a diagnosis of Churg-Strauss.

The most commonly involved organ is the lung, followed by the skin. CSS, however, can affect any organ system, including the cardiovascular, gastrointestinal, renal, and central nervous systems. The unifying feature of patients presenting with CSS is asthma. Vasculitis involving the peripheral nervous system is also a characteristic feature, and mononeuritis multiplex occurs in 75% of patients.

Vasculitis of extrapulmonary organs is largely responsible for the morbidity and mortality associated with CSS. Forty to 60% are associated with positive ANCA, usually pANCA/MPO.

Intravenous glucocorticoid is used for initial therapy of acute multi-organ disease, followed by oral glucocorticoid therapy, often with azathioprine as a steroid-sparing agent..

Loss of vision must be treated aggressively.

Allergic bronchopulmonary aspergillosis is a hypersensitivity reaction to *Aspergillus*. Its clinical presentation varies from corticosteroid-dependent asthma to diffuse bronchiectasis with fibrosis. Visual loss is not an associated feature.

Wegener's granulomatosis is a multi-organ autoimmune disease, which can be fatal. The classical triad consists of necrotising granulomatous inflammation of the respiratory tract, glomerulonephritis and a small-vessel vasculitis. A prolonged history of epistaxis or sinusitis is commonly found in Wegener's granulomatosis, which in some patients is also associated with an eosinophilia.

Hypereosinophilic syndrome is characterised by a peripheral blood eosinophil count of >1.5 for more than six months. Generalised symptoms are fatigue, myalgia, fever, night sweats, diarrhoea and pruritus. Other symptoms depend on the organ involved: cardiac disease causes chest pain and dyspnoea, respiratory disease presents with a dry cough.

Reference:

Carmichael J, et al. Churg-Strauss syndrome presenting with visual loss. *Rheumatology*. 2000;39:1433-1434.

Question

Next

Question

A 30-year-old man with longstanding psoriasis has a six week history of persistently swollen, painful, and tender right knee. The early morning stiffness lasts for over an hour, and he has partial relief from the use of NSAIDs.

He is negative for rheumatoid factor. A knee x ray is normal.

What is the next step in his long term management?

(Please select 1 option)

- Alternative NSAID
- Anti-TNF α agents
- Disease modifying antirheumatic drugs (DMARDs)
- Intra-articular corticosteroids
- Oral corticosteroids

Answer Question

Explanation

This patient has psoriatic arthritis and should be treated with a DMARD to prevent joint damage from proliferative/erosive changes in psoriatic arthritis.

In the United Kingdom, anti-TNF agents are used for the treatment of psoriatic arthritis only if the patient fails to respond to an adequate trial of two DMARDs (for example, leflunomide, methotrexate, sulfasalazine). Hydroxychloroquine has been shown to exacerbate psoriatic skin lesions in certain situations, and is therefore used with caution if at all.

Nonsteroidal anti-inflammatory drugs (NSAIDs) provide partial symptom relief and do not prevent progressive joint damage.

In patients with cutaneous psoriasis, systemic corticosteroids predispose to pustular psoriasis, and may result in a flare of skin psoriasis when they are stopped.

Intra-articular corticosteroid injections may be considered for symptom control during a mono- or oligo-articular flare of psoriatic arthritis. This is a useful adjunct to therapy but is not appropriate long term management in itself.

Question

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He is negative for rheumatoid factor. A knee x ray is normal.

What is the next step in his long term management?

Your Answer

- Alternative NSAID
- Anti-TNF α agents
- Disease modifying antirheumatic drugs (DMARDs) - This is the correct answer ✔
- Intra-articular corticosteroids

Next

Question

A 28-year-old woman without any past medical history presents with a three month history of arthralgia. She has no past medical history of note.

Examination reveals swelling of the distal interphalangeal joints of the middle and ring fingers of the hand and wrist on the right plus a swollen left ankle.

Investigations show:

ESR	40 mm/hr	(0-10)

Which of the following is the most likely diagnosis?

(Please select 1 option)

- Acute exacerbation of osteoarthritis
- Psoriatic arthropathy
- Reactive arthritis
- Rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

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- Reactive arthritis
- Rheumatoid arthritis
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question

Next

Incorrect

Explanation

This woman has psoriatic arthritis. Synovitis is indicative of an inflammatory arthritis. The rash typically pre-dates the arthropathy by a number of years, but the opposite can be true. Small plaques should be looked for on the elbows and scalp.

There are five patterns of disease:

1. Symmetrical polyarthritis ('rheumatoid pattern') - affects wrists, hands, feet and ankles. The distal interphalangeal joints are more commonly affected than the metacarpophalangeal joints, which helps to distinguish it from rheumatoid arthritis.
2. Asymmetrical oligoarticular arthritis - dactylitis.
3. Distal interphalangeal joint disease - typically in men.
4. Arthritis mutilans - rare.
5. Spondylitis pattern with sacroileitis.

Rheumatoid arthritis typically affects the metacarpophalangeal and proximal interphalangeal joints symmetrically. Psoriatic arthritis affects the distal interphalangeal joints and tends to be asymmetrical.

Joint involvement in systemic lupus erythematosus occurs in the form of a polyarticular arthralgia, frequently symmetrical and episodic. Intense tendonitis is more common than synovitis and can lead to deforming reversible subluxation of joints without erosive disease (Jaccoud's arthropathy).

Osteoarthritis would be unusual in someone of this age group.

Reactive arthritis is a sterile inflammatory arthritis which develops as a sequel to remote infection, usually of the gastrointestinal or urogenital tract. There is no history of such infection in this case. It also classically presents as a large joint oligoarthritis.

Question

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Examination reveals swelling of the distal interphalangeal joints of the middle and ring fingers of the hand and wrist on the right plus a swollen left ankle

Next

Question

Which of the following auto-antibodies may have a role in monitoring disease activity?

(Please select 1 option)

- Anti-ds DNA antibodies in systemic lupus erythematosus (SLE)
- Antinuclear antibodies in systemic lupus erythematosus
- Anti-Ro (SSA) antibodies in Sjogren's syndrome
- Anti-Sm antibodies in systemic lupus erythematosus
- Rheumatoid factor in rheumatoid arthritis

Answer Question

Incorrect

Explanation

The serum levels of anti-dsDNA antibodies appear to correlate with disease activity in many patients and often levels will rise just before a flare of disease.

The relationship is not close enough to be able to alter treatment based on a rising titre of antibodies but patients should be followed more closely in this situation.

Anti-Sm antibodies are very specific for SLE but not sensitive and there is no evidence that levels change with disease activity.

The only other autoantibody where there may be some correlation between levels and disease activity is circulating anti-neutrophil cytoplasmic antibody (cANCA) in granulomatosis with polyangiitis.

Question

Which of the following auto-antibodies may have a role in monitoring disease activity?

Your Answer

- Anti-ds DNA antibodies in systemic lupus erythematosus (SLE) - This is the correct answer ✔
- Antinuclear antibodies in systemic lupus erythematosus
- Anti-Ro (SSA) antibodies in Sjogren's syndrome
- Anti-Sm antibodies in systemic lupus erythematosus
- ✓ Rheumatoid factor in rheumatoid arthritis - Incorrect answer selected ✖

Next

Question

A 64-year-old lady is referred to your connective tissue disease clinic by her GP.

She has been complaining of four months of progressively worsening lower mandibular pain and gum swelling to the premolar region. This was commensurate with a dental extraction for an ipsilateral cavity thought to be the culprit. The residual wound has failed to heal.

Her past medical history includes multiple myeloma, and she takes zoledronic acid once monthly.

A CT scan of her mandible demonstrates disruption to cortical bone, a pathological fracture line and a large region of central bone loss.

What is the pathological process underlying this presentation?

(Please select 1 option)

- Actinomyces induced osteonecrosis
- Bisphosphonate induced osteonecrosis of the jaw
- Osteolysis secondary to multiple myeloma
- Osteoradionecrosis secondary to radiation therapy
- Primary (AL) amyloidosis

Answer Question

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Rate this question

Next

Incorrect

Explanation

This question covers the following earning points:

- Bone mineral density measurement in postmenopausal women
- Indications for bisphosphonate prophylaxis with glucocorticoid therapy
- Specific bisphosphonate pharmacotherapy.

The salient features of this case are;

- The underlying history of multiple myeloma[1]
- Long term use of zolendronic acid[2]
- Dental extraction surgery[3]
- A non-healing lesion which has persisted for greater than eight weeks[4] despite investigation and radiological evidence of pathological fractures.

Zolendronic acid has been linked to the development of osteonecrosis of the jaw, with a statistically significant association to dental extraction surgery as a precipitant. There is an increased incidence of this complication amongst patients with underlying malignancy, especially multiple myeloma.

A putative role for homozygosity of the T allele polymorphism for cytochrome P450 CYP2C8 conferring a significantly increased likelihood of developing ONJ is still under investigation.

Reference:

1. Walter C, et al. Incidence of bisphosphonate-associated osteonecrosis of the jaws in breast cancer patients. *Cancer.* 2009;115:1631-7.
2. Hansen T, et al. Osteonecrosis of the jaws in patients treated with bisphosphonates - histomorphologic analysis in comparison with infected osteoradionecrosis. *J Oral Pathol Med.* 2006;35:155-60.
3. Filleul O, et al. Bisphosphonate-induced osteonecrosis of the jaw: a review of 2,400 patient cases. *J Cancer Res Clin Oncol.* 2010;136:1117-24.
4. Khosla S, et al. Bisphosphonate-associated osteonecrosis of the jaw: report of a task force of the American Society for Bone and Mineral Research. *J Bone Miner Res.* 2007;22:1479-91.

Next

Question

Which one of the following drugs works by inhibiting the tumour necrosis factor?

(Please select 1 option)

- Cyclosporin
- Infliximab
- Methotrexate
- Montelukast
- Sulfasalazine

Answer Question

Incorrect

Explanation

Montelukast works as a leukotriene receptor antagonist and is used in the treatment of asthma. Etanercept and infliximab inhibit TNF and are licensed in the treatment of rheumatoid arthritis. Infliximab is given with methotrexate and is associated with the development of tuberculosis.

Question

Which one of the following drugs works by inhibiting the tumour necrosis factor?

Your Answer

- Cyclosporin
- Infliximab - This is the correct answer ✔
- Methotrexate
- Montelukast
- Sulfasalazine - Incorrect answer selected ✖

Rate this question

Next

Question

A 55-year-old woman receiving 10 mg of methotrexate and 5 mg of folate weekly presents with a sore right finger after cutting herself in the garden.

On examination she has a swollen erythematous right ring finger up to the proximal interphalangeal joint and you diagnose a cellulitis. You give her a prescription for erythromycin as she is allergic to penicillins. She has been receiving the methotrexate for just over one year with no problems and all routine blood monitoring has been normal.

Whilst monitoring the response of the infection to treatment, what is the most appropriate strategy regarding her methotrexate therapy?

(Please select 1 option)

- Continue methotrexate and folate unchanged
- Continue methotrexate unchanged and increase folate supplements to 10 mg daily
- Reduce dose of methotrexate to 5 mg weekly
- Stop methotrexate only if full blood count reveals a neutropenia
- Stop methotrexate until the infection has resolved

Answer Question

Explanation

In the circumstances of infection one should consider temporarily stopping methotrexate as it is an immunosuppressant.

Any infection should be treated as usual and the response to treatment monitored. Once the infection has been successfully treated methotrexate can be reinstated. However, if the patient has recurrent serious infections while taking methotrexate its continued long term use should be discussed with the patient's rheumatologist.

*Some local variations may exist regarding dose and frequency of folate therapy. Please be aware of your local guidelines.

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- ✓ Stop methotrexate until the infection has resolved - Correct ✔

Next

Question

A 43-year-old female presented with a week's history of pain and stiffness in her shoulders and wrists which was worse in the mornings.

On examination, there was synovitis of both wrists. There was no proximal muscle tenderness or weakness. Her erythrocyte sedimentation rate (ESR) was 50 mm/hr (0-20).

What is the most likely diagnosis?

(Please select 1 option)

- Polymyalgia rheumatica (PMR)
- Polymyositis
- Reactive arthritis
- Rheumatoid arthritis
- Systemic lupus erythematosus

Answer Question

Rheumatology/European League Against Rheumatism collaborative initiative. *Arthritis Rheum.* 2010;62(9):2569-81.

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- Reactive arthritis
- Rheumatoid arthritis - This is the correct answer ✔
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Rate this question



Next

Incorrect

Explanation

This is a slightly difficult question, but you may experience similar during the exam. It tests your ability to consider epidemiology as well as your knowledge of disease presentations.

In this middle aged female, the acute bilateral arthritis of shoulders and wrists together with synovitis and raised ESR are highly suggestive of acute rheumatoid arthritis. The features given do not fully satisfy the ACR criteria (see the reference for updated guidelines), but it is not unusual for this to be the case in clinical practice.

Weakness and myalgia would be expected with polymyositis and a rash would be expected with systemic lupus erythematosus with less evidence of a synovitis.

There is no prior precipitant to suggest a reactive arthritis, although it is important to consider this diagnosis in young patients.

PMR would be less likely in this age group as it usually occurs in patients over 50 years of age

Proximal weakness in the morning with the gel phenomenon would be expected, and synovitis in the wrists would be less likely in PMR.

Reference:

Aletaha D, et al. 2010 Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. *Arthritis Rheum.* 2010;62(9):2569-81.

Question

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What is the most likely diagnosis?

Your Answer

Polymyalgia rheumatica (PMR)

Next

Question

A 52-year-old woman with a three year history of sero-positive erosive rheumatoid arthritis has recently commenced methotrexate therapy initiated at the rheumatology clinic.

Which one of the following agents should she also be receiving in conjunction with her methotrexate?

(Please select 1 option)

- Folic acid
- Omeprazole
- Thiamine
- Vitamin C
- Zinc supplements

Answer Question

Incorrect

Explanation

Methotrexate is a chemotherapeutic agent as well as being an immunosuppressant used as a disease-modifying antirheumatic drug (DMARD). It acts through inhibition of dihydrofolate reductase thus depleting folate concentrations.

To reduce the impact of folate deficiency a dose of 5 mg of folic acid weekly* is recommended in conjunction with methotrexate taking the agent at least two days prior to commencing the methotrexate. Its action in arthritides is not entirely understood but may relate to both anti-inflammatory as well as immunomodulation.

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Next

Question

A 51-year-old female has rheumatoid arthritis.
She states that she is allergic to penicillin and co-trimoxazole.
Therefore, which of the following drugs is contraindicated?

(Please select 1 option)

- Azathioprine
- Ciclosporin
- Gold therapy
- Methotrexate
- Sulphasalazine

Answer Question

Explanation

Both co-trimoxazole and sulphasalazine contain sulphonamide groups and hence an allergy to co-trimoxazole would be a contraindication to the use of sulphasalazine.

Co-trimoxazole is a mixture of trimethoprim and sulfamethoxazole.

Sulphasalazine is a combination of 5-aminosalicyclic acid and sulfapyridine. It is commonly used in the treatment of inflammatory bowel disease, and can also be used in rheumatoid and psoriatic arthritis.

Azathioprine is a purine analogue which is commonly used as a steroid-sparing agent.

Ciclosporin is a calcineurin inhibitor, used for the prevention of transplant rejection.

Gold therapy was previously used as a disease modifying agent in rheumatoid arthritis, but this has now been replaced by methotrexate which is a dihydrofolate reductase inhibitor.

Question

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Therefore, which of the following drugs is contraindicated?

Your Answer

- Azathioprine
- Ciclosporin
- Gold therapy
- Methotrexate
- ✓ Sulphasalazine - Correct ✔

Next

Question

A 36-year-old woman presents with an acutely painful red eye and painful lumpy red-blue lesions on her shin.

On enquiry she gives a history of recurrent episodes of oral and genital ulcers in the last year. Some of these ulcers have been scarring.

Recent blood tests show a normocytic normochromic anaemia, normal LFTs, UE&C, and a raised ESR of 56 mm/hr.

What is the diagnosis?

(Please select 1 option)

- Behçet's disease
- Reactive arthritis
- Sarcoidosis
- Stevens-Johnson syndrome
- Systemic lupus erythematosus

Answer Question

Question

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- Behçet's disease - This is the correct answer ✔
- Reactive arthritis
- Sarcoidosis
- Stevens-Johnson syndrome
- ✓ Systemic lupus erythematosus - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This patient has Behçet's disease. This is a clinical diagnosis. Recurrent scarring oro-genital ulcers are pathognomonic of Behçet's disease. Recurrent oral ulcers occur in SLE but they are generally non-scarring.

Reactive arthritis and sarcoidosis do not associate with recurrent scarring oro-genital ulcers.

Uveitis does not occur in Steven-Johnson's syndrome.

The International Study Group criteria for classification of Behçet's disease require the presence of recurrent oral ulceration (minor aphthous, major aphthous or herpetiform ulceration observed by physician or patient, which have recurred at least three times in a 12 month period), and two of the following:

- Recurrent genital ulceration - aphthous ulceration or scarring, observed by physician or patient
- Eye lesions - anterior uveitis, posterior uveitis, or cells in vitreous on slit lamp examination; or retinal vasculitis observed by ophthalmologist
- Skin lesions - erythema nodosum observed by physician or patient, pseudofolliculitis or papulopustular lesions; or acneiform nodules observed by the physician in post-adolescent patients not on corticosteroid treatment
- Positive pathergy test - read by physician at 24-48 hours.

Pathergy is the non-specific hyperreactivity of the skin following minor trauma, and is specific to Behçet's disease. It involves intradermal injection of skin with a 20-gauge needle under sterile conditions. It is considered positive if an erythematous sterile papule develops within 48 hours.

Question

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Recent blood tests show a normocytic normochromic anaemia, normal LFTs, UE&C, and a raised ESR of 56 mm/hr.

Next

Question

A study has been designed to investigate whether a certain drug plus physiotherapy treatment is better than drug treatment alone in the management of rheumatoid arthritis.

After randomising the patients, a small proportion of the drug plus physiotherapy group decide to drop out of the study or omit some treatment sessions specified in the research protocol.

What is the correct way of analysing the subsequent data?

(Please select 1 option)

- Assume the patients have withdrawn their consent
- Exclude these patients from all analysis
- Extend the trial recruitment to make up the numbers
- Include these patient outcomes in the drug plus physiotherapy group
- Interview the patients and report their group separately

Answer Question

Incorrect

Explanation

This is the principle of 'intention to treat'.

It is possible that the physiotherapy intervention was harmful to the patients and this is why they left.

Intention to treat helps to reduce bias by sticking to the original allocation of treatment and analysing the patient in that treatment group even if they do not recieve the treatment.

Question

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- Exclude these patients from all analysis
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- Include these patient outcomes in the drug plus physiotherapy group - This is the correct answer ✔
- ✓ Interview the patients and report their group separately - Incorrect answer selected ✖

Next

Question

A 72-year-old man presents with a three day history of acute onset, progressively worsening knee pain which began 24 hours after returning from a walking holiday in the New Forest. There is associated knee joint stiffness in the morning lasting approximately 20 minutes. He has an intermittent subjective fever.

He is currently partially weight bearing and reports particular difficulty ascending the stairs at home. His temperature is 37.2°C, pulse 88, blood pressure 128/90 mmHg. The left knee is swollen, tender and normothermic with crepitus present during a markedly reduced active range of motion.

Initial investigations demonstrated the following;

FBC	Normal	
Westergren ESR	38 mm/hr	(0-30)
CRP	<5 mg/L	(<10)
Rheumatoid factor titre	1:80	(>1:40)
Synovial fluid aspirate WCC	1800/mm^3	(<2000)

Which one of the following is the most likely diagnosis?

(Please select 1 option)

- *Borrelia burgdorferi*monoarticular synovitis
- Calcium pyrophosphate arthropathy
- Patellofemoral osteoarthritis
- Prepatellar bursitis
- Rheumatoid arthritis

Answer Question

reduced active range of motion.

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- Calcium pyrophosphate arthropathy
- Patellofemoral osteoarthritis - This is the correct answer ✔
- Prepatellar bursitis
- ✓ Rheumatoid arthritis - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Next

Incorrect

Explanation

This 72-year-old man presents with a classical history for patellofemoral osteoarthritis (OA). The following fulfil the clinical criteria for diagnosis:

- His age (>45 years)
- Morning stiffness lasting less than 30 minutes
- Functional limitation joint crepitus on active motion

Joint crepitus does not occur with prepatellar bursitis.

His inflammatory markers are normal, militating against rheumatoid arthritis.

The upper limit for synovial fluid WCC in OA is 2000/mm[1]. White cells higher than this may suggest an inflammatory or septic arthritis, depending on the clinical context.

His weakly positive rheumatoid factor (titre should be greater than1:40) is likely a product of his age.

The minimum incubation period for Lyme disease is three days[2], and the diagnosis is much less likely in a patient of this age where osteoarthritis is highly prevalent

There is no mention of crystals on synovial fluid examination to suggest pseudogout, although this can complicate osteoarthritis.

Reference:

Diagnosis and classification of osteoarthritis.

Centers for Disease Control and Prevention. Recommendations for the Use of Lyme Disease Vaccine Recommendations of the Advisory Committee on Immunization Practices (ACIP).

Question

A 72-year-old man presents with a three day history of acute onset, progressively worsening knee pain which began 24 hours after returning from a walking holiday in the New Forest. There is associated knee joint stiffness in the morning lasting approximately 20 minutes. He has an intermittent subjective fever.

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Next

Question

A 25-year-old lady gives birth to a baby with complete heart block who subsequently requires pacemaker insertion.
Which of the following antibodies is most likely to be detected in the maternal serum?

(Please select 1 option)

- Anti-dsDNA antibodies
- Anti-endomysial antibodies
- Anti-Ro/SSA antibodies
- Anti-SCL70 antibodies
- Rheumatoid factor

Answer Question

Incorrect

Explanation

The majority of cases of congenital heart block are due to the presence of anti-Ro/SSA antibodies in the maternal serum.

The mother may have no evidence of a connective tissue disorder.

The risks of congenital heart block in mothers with anti-Ro/SSA antibodies remains very small (<3%) but the correlation between the presence of anti-Ro/SSA antibodies and congenital heart block is very strong.

The heart block is generally permanent (unlike other features of neonatal lupus) and insertion of a permanent pacemaker is frequently required.

Question

A 25-year-old lady gives birth to a baby with complete heart block who subsequently requires pacemaker insertion.

Which of the following antibodies is most likely to be detected in the maternal serum?

Your Answer

- Anti-dsDNA antibodies
- Anti-endomysial antibodies
- Anti-Ro/SSA antibodies - This is the correct answer ✔
- Anti-SCL70 antibodies
- ✓ Rheumatoid factor - Incorrect answer selected ✖

Next

Question

A 45-year-old man presented to the Emergency department with a 48 hour history of bilateral swollen ankles. He is known to have a history of an acute gout episode affecting his left first MTPJ.

He had recently been travelling in Europe and returned yesterday. During his trip he had had one episode of night sweats which he put down to the possibility of having caught flu, but he did mention that he had noticed feeling less fit than previously during activities.

Clinically he had a low grade pyrexia of 37.7°C but was otherwise well. Blood results showed an elevated ESR 40 and CRP 15, FBC, renal profile and LFTs were otherwise unremarkable.

Physical examination revealed normal abdominal, chest and cardiovascular findings. There were two patches of raised rash over his knees, which were painful. There were no features of synovitis elsewhere.

Which of the following would be the most appropriate next investigation?

(Please select 1 option)

- Ankle aspirate
- Blood cultures
- CXR
- Serum urate
- Skin biopsy

Answer Question

his left first MTPJ.

He had recently been travelling in Europe and returned yesterday. During his trip he had had one episode of night sweats which he put down to the possibility of having caught flu, but he did mention that he had noticed feeling less fit than previously during activities.

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Which of the following would be the most appropriate next investigation?

Your Answer

- Ankle aspirate
- Blood cultures
- CXR - This is the correct answer ✔
- Serum urate
- ✓ Skin biopsy - Incorrect answer selected ✖

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Incorrect

Explanation

This man has bilateral swollen ankles with raised erythrocyte sedimentation rate (ESR) and mildly raised C reactive protein (CRP), some constitutional symptoms and a rash suggestive of erythema nodosum. Sarcoidosis is therefore high on the list of differentials.

The typical erythema nodosum (EN) rash consists of a sudden onset of symmetrical, tender, erythematous, warm nodules and raised plaques usually located on the shins, ankles and knees. The description above should therefore lead you to consider EN.

Joint aspirate is not the next best investigation as the patient is not clinically septic and has bilateral swelling which decreases the likelihood of septic arthritis.

Blood cultures are not clinically appropriate currently, as the patient is afebrile and not clinically septic.

A chest x ray may show bilateral hilar lymphadenopathy to guide towards a diagnosis of sarcoidosis and is the most appropriate investigation listed here.

The history is not typical of gout and urate levels will not alter treatment nor is this a diagnostic test.

The results of a skin biopsy will take up to a week, and it is therefore not the most appropriate first line investigation. In general, a biopsy will only be taken if the clinical diagnosis is in doubt. If done the histopathology will show a mostly septal panniculitis, with no vasculitis. The septa of the subcutaneous fat are thickened, and variously infiltrated by inflammatory cells that extend to the periseptal areas of the fat lobules. The composition of the inflammatory infiltrate in the septa varies with the age of the lesion[1]. Miescher's radial granulomas (relatively small histiocytes radially placed around a central cleft) may be present, which are a characteristic marker of erythema nodosum[2].

Reference:

1. Requena L, Requena C. Erythema nodosum. *Dermatol Online J.* 2002;8(1):4.
2. Sánchez Yus E, et al. Miescher's radial granuloma. A characteristic marker of erythema nodosum. *Am J Dermatopathol.* 1989;11(5):434-42.

Question

A 45-year-old man presented to the Emergency department with a 48 hour history of

Next

Question

A 30-year-old woman presents with Raynaud's phenomenon.
Which one of the following clinical features suggests an underlying connective tissue disease?

(Please select 1 option)

- Episodes lasting in excess of one hour
- Involvement of toes
- One previous miscarriage in early pregnancy
- Symmetrical involvement of fingers
- Symptoms developed as a teenager

Answer Question

2. NHS Clinical Knowledge Summaries. Raynaud's phenomenon.
3. Saigal R, et al. Raynaud's phenomenon. *J Assoc Physicians India.* 2010;58:309-13.

Question

A 30-year-old woman presents with Raynaud's phenomenon.
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Your Answer

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- Involvement of toes
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- ✓ Symptoms developed as a teenager - Incorrect answer selected ✖

Rate this question

☆ ☆ ☆ ☆ ☆

Finish

Explanation

Raynaud's phenomenon is a common clinical presentation, which may be primary or secondary to underlying disease.

It can be diagnosed if there is a history of clearly demarcated pallor of the digit(s) followed by at least one other colour change (cyanosis and/or erythema). Symptoms are usually precipitated by cold (or less commonly emotion). Vasospasm without endothelial damage is thought to be the main cause for primary RP. The pathogenesis of secondary forms is probably initiated primarily by endothelial damage.

Physical examination, nailfold capillaroscopy and immunological tests can differentiate between primary and secondary Raynaud's.

You should suspect secondary Raynaud's phenomenon if any of the following are present:

- Onset at more than 30 years of age
- Intense, painful or asymmetrical episodes
- Presence of additional clinical features suggestive of underlying disease
- Positive anti-nuclear antibody
- Abnormal nail-fold capillaries
- Digital ulcers, gangrene or severe ischaemia of one or more digits.

Primary Raynaud's can be diagnosed if all the following are present:

- No suspicion of underlying disease
- Symmetrical episodes affecting both hands, but not necessarily all fingers
- No tissue necrosis, ulceration, gangrene or severe ischaemia
- Normal nail-fold capillaries
- Normal ESR and negative anti-nuclear antibodies.

Treatment involves prevention so that permanent ischaemic damage can be avoided. Patients should avoid exposure to the cold.

The mild forms of primary RP can be controlled by non-pharmacological approaches alone. If insufficient, the first choice therapy is calcium channel blockers. In severe forms, intravenous prostaglandin, endothelin-1 receptor antagonists and phosphodiesterase-5 inhibitors are used.

Future treatment options may include selective alpha-2c adrenergic receptor blockers, tyrosine and Rho-kinase inhibitors and calcitonin gene-related peptide.

Differential diagnosis of Raynaud's phenomenon includes:

Finish

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Differential diagnosis of Raynaud's phenomenon includes:

- Chilblains (perniosis): erythematous itchy swellings on fingers and toes in response to cold
- Acrocyanosis: continuous blueness of the extremities aggravated by cold
- Erythromelalgia: painful erythema caused by paroxysmal dilatation of blood vessels
- Vascular embolism
- Livedo reticularis
- Mottled, cyanotic discolouration of skin.

Whilst it is not a strict criteria given in the current guidance, it is recognised that episodes do tend to be longer in secondary Raynaud's. Episodes typically terminate within 15 minutes following warming in primary disease, but can often be prolonged in secondary disease. All the other features described here would be consistent with a diagnosis of primary Raynaud's disease.

Whilst miscarriage can be associated with connective tissue disease, in particular antiphospholipid syndrome, it is common in the population especially in early pregnancy.

Reference:

1. Lambova SN, Müller-Ladner U. New lines in therapy of Raynaud's phenomenon. *Rheumatol Int.* 2009;29:355-63.
2. NHS Clinical Knowledge Summaries. Raynaud's phenomenon.
3. Saigal R, et al. Raynaud's phenomenon. *J Assoc Physicians India.* 2010;58:309-13.

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